

RS-14-250

October 31, 2014

U.S. Nuclear Regulatory Commission  
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Peach Bottom Atomic Power Station, Unit 2  
Renewed Facility Operating License No. DPR-44  
NRC Docket No. 50-277

**Subject:** Supplemental Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Seismic Aspects of Recommendation 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident

**References:**

1. Exelon Generation Company, LLC 180-day Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Seismic Aspects of Recommendation 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, dated November 19, 2012 (RS-12-173)
2. 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
3. Exelon Generation Company, LLC Proposed Resolution for Completion of the Seismic Walkdowns Associated with NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Seismic Aspects of Recommendation 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, dated September 16, 2013 (RS-13-213)

In Reference 1, Exelon Generation Company, LLC (EGC) provided the NRC with the Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3 seismic walkdown reports in accordance with the NRC Request for Information (Reference 2). The PBAPS Units 2 and 3 seismic walkdown reports verify current plant configuration with current licensing basis, and verify the adequacies of monitoring and maintenance procedures. In Enclosure 3 of Reference 1, EGC provided the list of the three (3) PBAPS Unit 2 electrical items identified in Tables E-2 and E-3 of Reference 1 that required supplemental inspections. EGC committed to complete the remaining three (3) supplemental inspections of these electrical cabinets by May 31, 2015

(Commitment No. 2). In Reference 3, EGC provided a revised commitment to complete these three (3) items by July 31, 2014 (Commitment No. 13). These inspections have been completed.

Enclosure 1 to this letter provides the results of the completed supplemental walkdown inspections described above.

No degraded, nonconforming, or unanalyzed conditions that require either immediate or follow up actions were identified.

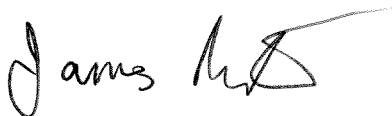
This report completes Regulatory Commitment No. 2 contained in Reference 1, and Regulatory Commitment Nos. 13 and 14 contained in Reference 3.

This letter contains no new regulatory commitments.

Should you have any questions concerning the content of this letter, please contact Ron Gaston at (630) 657-3359.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 31<sup>st</sup> day of October 2014.

Respectfully,



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

Enclosure:

1. Seismic Walkdown Report In Response To The 50.54(f) Information Request Regarding Fukushima Near-Term Task Force Recommendation 2.3: Seismic, Updated Transmittal #1 (Annex A) for the Peach Bottom Atomic Power Station, Unit 2, Report No. RS-14-250

cc: Director, Office of Nuclear Reactor Regulation  
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U.S. Nuclear Regulatory Commission  
Supplemental Response to 50.54(f) Letter  
NTTF Recommendation 2.3: Seismic  
October 31, 2014

**ENCLOSURE 1**

Seismic Walkdown Report In Response To The 50.54(f) Information Request Regarding  
Fukushima Near-Term Task Force Recommendation 2.3: Seismic, Updated  
Transmittal #1 (Annex A) for the Peach Bottom Atomic Power Station, Unit 2,  
Report No. RS-14-250

(94 Pages)

# SEISMIC WALKDOWN REPORT

IN RESPONSE TO THE 50.54(f) INFORMATION REQUEST REGARDING  
FUKUSHIMA NEAR-TERM TASK FORCE RECOMMENDATION 2.3: SEISMIC

## UPDATED TRANSMITTAL # 1 (ANNEX A)

for the

### PEACH BOTTOM ATOMIC POWER STATION UNIT 2

1848 Lay Road, Delta, PA 17314

Facility Operating License No. DPR-44

NRC Docket No. STN 50-277

Correspondence No.: RS-14-250



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# Executive Summary

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## PURPOSE

This report documents the seismic walkdowns performed at Peach Bottom Atomic Power Station (PBAPS) Unit 2 in response to NRC 50.54(f) letter dated March 12, 2012, Enclosure 3, Recommendation 2.3: Seismic. Exelon committed to perform this work in accordance with the NRC-endorsed Seismic Walkdown Guidance document (Electric Power Research Institute (EPRI) Technical Report 1025286, Reference 1).

## SCOPE OF WORK

In addition to defining the qualifications of personnel performing this work, the EPRI Seismic Walkdown Guidance identifies the following key activities:

- Selection of Systems, Structures, and Components (SSC) to be included in the sample scope of the seismic walkdowns. Screening criteria are applied to obtain an informed sample of electrical and mechanical equipment that are required to perform the four reactor safety functions and containment function, and address NRC concerns about Spent Fuel Pool related equipment. (see Section 4 of this report)
- Seismic Walkdowns and Area Walk-Bys are performed by trained, two-person teams of Seismic Walkdown Engineers (SWEs), who document their inspections on structured checklists included in the EPRI Guidance. (see Section 5 of this report)
- Seismic Licensing Basis Evaluations are performed for issues identified as "potentially adverse seismic conditions," and all issues, whether they rise to this level or not, are included in the Corrective Action Program (CAP) so that standard plant processes can be used to address the issue. (see Section 6 of this report)
- IPEEE Vulnerabilities Resolution Report is required for plants who identified seismic vulnerabilities during their IPEEE program and made commitments to resolve them. IPEEE seismic commitments are identified, resolutions documented, and confirmatory checks made during these walkdowns are documented. (see Section 7 of this report)
- Peer Review is required by a team comprised of at least two individuals for each of the key activities of this project. (see Section 8 of this report)

## RESULTS

The Seismic Walkdown Equipment List (SWEL) for PBAPS Unit 2, including the items selected that are common to both Units 2 and 3, e.g., emergency cooling tower equipment, is comprised of 114 items. Of this list, 113 equipment items were walked down during the 180-day window of completion of the initial scope of work required by the 50.54(f) letter. The walkdown for the remaining 1 item was deferred to a future



electrical bus outage. Additionally, confirmation that equipment anchorage is consistent with plant design documentation is required for 50% of the SWEL items having anchorage (e.g., not line-mounted). A total of 51 anchorage configurations were confirmed to be installed in accordance with the design documentation.

All electrical cabinets on the SWEL require assessment of the need for inspections to address the potential for "other adverse seismic conditions" internal to the cabinet. This assessment is required due to an NRC clarification of their expectations for seismic walkdowns, which was received after the online seismic walkdowns were completed. Tables E-2 (for Unit 2) and E-3 (for common equipment) list all electrical items that require assessment. Accessibility of equipment, basis for accessibility determination, completion date of internal inspections, tracking number (if internal inspection has not yet been performed) and inspection results are provided in these tables.

None of the issues identified during the walkdowns of PBAPS Unit 2 equipment and nearby areas required formal seismic licensing basis evaluations because none of the issues ultimately were assessed to be adverse seismic conditions. Smaller issues, however, such as missing mounting fasteners, were identified and entered into the plant's Corrective Action Program (CAP). A total of 9 Issue Reports (IRs) were issued, and the status of IR resolutions is provided in Tables 5-2 and 5-3 for issues identified during equipment walkdowns and area walk-bys, respectively.

All seismic vulnerabilities identified during the IPEEE (or A-46) program are summarized in Tables 7-1 and 7-2, including resolutions and confirmatory checks made during these walkdowns. All IPEEE seismic vulnerabilities for Peach Bottom Unit 2 have been resolved.

## CONCLUSIONS

1. As confirmed in the Peer Review Report (see Appendix F), all activities required by the 50.54(f) letter were conducted in accordance with the NRC-endorsed EPRI Seismic Walkdown Guidance, except for the following items:
  - One inaccessible equipment item will need to be walked down during an electrical bus outage.
  - Three (3) electrical cabinets will need to be opened for an internal inspection for "other adverse seismic conditions" in accordance with NRC expectations that were provided to industry after these walkdowns were completed. These inspections are scheduled for the next available electrical outage.
2. None of the 113 equipment items included in the walkdowns have conditions that would prevent them from performing their safety-related functions following a licensing basis seismic event. Additionally, a sample of more than 50% of equipment with anchorage was confirmed to be consistent with design basis documentation.
3. The nine (9) anomalies or discrepant conditions identified during the equipment walkdowns or area walk-bys have been assessed in accordance with the plant

corrective action program (CAP), and their resolutions are being tracked for timely closure.

## **ANNEX A SUMMARY**

To address the items deferred due to inaccessibility and the supplemental inspections of electrical cabinets, follow-on Seismic Walkdowns and Area Walk-Bys were conducted during the 3rd quarter of 2014. No degraded, nonconforming, or unanalyzed conditions that require either immediate or follow-on actions were identified.

Annex A to this report provides:

- 1) Additional information obtained from these follow-on inspections performed on the open items listed on Tables E-1, E-2 and E-3. (Section A9, Ref. 12)
- 2) Status updates on the conditions identified during the previous Walkdowns and Walk-Bys, listed on Table 5-1, 5-2 and 5-3. (Section A9, Ref. 12)

As of July 16<sup>th</sup>, 2014, follow-on activities required to complete the efforts to address Enclosure 3 of the 50.54(f) letter (Ref. 11) are now complete. With this transmittal Commitments 1 and 2 of (Ref. 12) and Commitments 13 and 14 of (Ref. 13) may be closed.

# 1

## Introduction

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### 1.1 BACKGROUND

In response to Near-Term Task Force (NTTF) Recommendation 2.3, the Nuclear Regulatory Commission (NRC) issued a 10CFR50.54(f) letter on March 12, 2012 requesting that all licensees perform seismic walkdowns to identify and address plant degraded, non-conforming, or unanalyzed conditions, with respect to the current seismic licensing basis. The Nuclear Energy Institute (NEI), through the Electric Power Research Institute (EPRI), prepared industry guidance to assist licensees in responding to this NRC request. The industry guidance document EPRI Technical Report 1025286, *Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic*, dated June 2012 (Reference 1), was endorsed by the NRC on May 31, 2012.

This report documents the technical basis for Exelon's response to the 10CFR50.54(f) request to conduct seismic walkdowns at Peach Bottom Atomic Power Station Unit 2.

### 1.2 PLANT OVERVIEW

The Peach Bottom Atomic Power Station (PBAPS) consists of two boiling water reactor (BWR) generating units, located in southeastern Pennsylvania. Both units have GE Mark I containments, are rated at 3514 MWt power, and were designed and constructed by Bechtel (PBAPS Updated Final Safety Analysis Report (UFSAR) (Reference 2), Section 1.1). PBAPS Unit 2 received its full-power license in August 1973 (Facility Operating License No. DPR-44 (Reference 9)).

### 1.3 APPROACH

The EPRI Seismic Walkdown Guidance (Reference 1) is used for the PBAPS Unit 2 engineering walkdowns and evaluations described in this report. In accordance with Reference 1, the following topics are addressed in the subsequent sections of this report:

- Seismic Licensing Basis
- Personnel Qualifications
- Selection of SSCs
- Seismic Walkdowns and Area Walk-Bys
- Licensing Basis Evaluations
- IPEEE Vulnerabilities Resolution Report
- Peer Review

# 2

## Seismic Licensing Basis

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### 2.1 SAFE SHUTDOWN EARTHQUAKE (SSE)

The PBAPS design of Seismic Class I structures are based on a dynamic analysis using the spectrum response curves developed for the site. The structures are analyzed for the maximum credible earthquake (MCE) which considers a maximum horizontal ground acceleration of 0.12g (Reference 2, Section C.2.2). The vertical ground acceleration associated with the MCE is 2/3 of the horizontal acceleration which is 0.08g (Reference 2, Section C.2.2). Critical plant structures were designed in accordance with the response spectra based on data developed from the seismology studies performed for the site. It was concluded that the solid rock foundation is subject to only minor earthquake activity and it is expected to respond well with no adverse effects (Reference 2, Section 1.6.1.1.7).

### 2.2 DESIGN OF SEISMIC CLASS I SSCs

Generic Letter 87-02 issued on February 19, 1987 and Supplement No. 1 issued May 22, 1992, list PBAPS Unit 2 as an USI A-46 Plant (Table A, Category 3). Seismic Class I mechanical and electrical equipment at PBAPS are qualified using rational stress analysis, empirical methods, or the Seismic Qualification User's Group (SQUG) Generic Implementation Plan (GIP) methodology (Reference 2, Section C.5.1). The use of the SQUG method is limited to the listed equipment classes and cannot be used for equipment PBAPS has specifically committed to the NRC to qualify to IEEE 344-75 (Reference 2, Section C.5.1.3).

# 3

## Personnel Qualifications

Table 3-1 below summarizes the names and corresponding roles of personnel who participated in the NTTF 2.3 Seismic Walkdown effort.

**Table 3-1. Personnel Roles**

Name	Equipment Selection Engineer	Plant Operations	Seismic Walkdown Engineer (SWE)	Licensing Basis Reviewer	IPEEE Reviewer	Peer Reviewer
B. Frazier	X		X	X	X	
C. Swanner			X	X		X <sup>(Note 1)</sup>
M. Oghbaei			X	X		
J. Wiggin			X	X		
K. Gantz			X	X		
C. Schlaseman						X
P. Butler						X <sup>(Note 2)</sup>
J. Hanley (Exelon)		X				

Notes:

1. Peer Review Team Member for SWEL review.
2. Peer Review Team Leader.

A description of the responsibilities of each Seismic Walkdown participant's role(s) is provided in Section 2 of the EPRI Seismic Walkdown Guidance (Reference 1). Resumes provided in Appendix A provide detail on each person's qualifications for his or her role.

The SWEL preparer, Ben Frazier, does not have prior experience with the IPEEE program, which was performed during the 1990s. The Peer Reviewers, however, do have experience with IPEEE. For SWEL preparation, Mr. Frazier was provided with the plant's IPEEE submittal report and NRC requests for additional information (RAI) responses, as well as the NRC Safety Evaluation (SE) on the IPEEE program. Mr. Frazier's review of these documents, combined with the reviews by the Peer Reviewers, was sufficient to meet the intent of the guidance in Reference 1 that Equipment Selection Personnel "should also have knowledge of the IPEEE program."

In addition to the MPR personnel listed above, Exelon Plant Operations, J. Hanley, reviewed the SWEL. Mr. Hanley is a former licensed Senior Reactor Operator (SRO) at another station, currently holds an SRO Certification at PBAPS, and currently supports operator training. Station personnel also provided support to the SWEL preparer in identifying major equipment or system modifications, equipment and systems located in different environments, and equipment and systems that would be accessible for inspection during the plant walkdowns, in accordance with Reference 1.

# 4

## Selection of SSCs

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### 4.1 SWEL DEVELOPMENT OVERVIEW

The EPRI Seismic Walkdown Guidance (Reference 1) defines the process used to develop the Seismic Walkdown Equipment List (SWEL) for PBAPS Unit 2.

In accordance with Reference 1, a SWEL is comprised of two groups of items:

1. SWEL 1 is a sample of items needed to safely shut down the reactor and maintain containment integrity
2. SWEL 2 is a list of spent fuel pool related items

### 4.2 SWEL 1 – SAMPLE OF REQUIRED ITEMS FOR THE FIVE SAFETY FUNCTIONS

The PBAPS Safe Shutdown Equipment List (SSEL) (Reference 3) is considered the "Base List 1" and is provided in Appendix B of this report. To ensure the SSEL Base List 1 meets the EPRI Seismic Walkdown Guidance, the SSEL was compared with the screens described in the following sections. It is noted that the PBAPS SSEL does not specifically address the containment function. Therefore the SSEL was reviewed for components having at least one safety-related containment function. The number of SSEL components with a containment function was considered sufficient for selecting a sample of equipment representing the containment function.

#### 4.2.1 Screen #1 – Seismic Class I

As described in Reference 1, only items that have a defined seismic licensing basis are to be included in SWEL 1. The seismic classification was identified for each item on the SSEL, and items that were not Seismic Class I were removed from consideration for inclusion in SWEL 1. Seismic classification was determined through a review of current design and licensing basis documentation.

#### 4.2.2 Screen #2 – Equipment or Systems

This screen narrowed the scope of items to include only those that do not regularly undergo inspections to confirm that their configuration is consistent with the plant licensing basis. This screen removed Seismic Class I Structures, Containment Penetrations, and Seismic Class I Piping Systems from consideration for inclusion in SWEL 1. Cable/conduit raceways and HVAC ductwork are addressed in area walkbys and not as discrete components in SWEL 1.

### **4.2.3 Screen #3 – Support for the 5 Safety Functions**

This screen narrowed the scope of items included on the SWEL 1 to only those associated with maintaining the following five safety functions:

1. Reactor Reactivity Control
2. Reactor Coolant Pressure Control
3. Reactor Coolant Inventory Control
4. Decay Heat Removal
5. Containment Function

The first four functions are associated with bringing the reactor to a safe shutdown condition. The fifth function is associated with maintaining containment integrity.

Reference 3 (Page 5) identifies the primary and backup systems that are applicable to each of the first four safety function. Reference 3 also identifies the support systems for those safety functions (e.g., emergency diesel generators). Components on the SSEL that are essential to the containment function were identified as part of this project because, as noted above, the SSEL did not specifically include equipment for containment function.

### **4.2.4 Screen #4 – Sample Considerations**

The items selected from the Base List 1 SSEL for inclusion in SWEL 1 are shown in Tables B-1 (Unit 2) and B-2 (Unit 0, common equipment for both Units 2 and 3) of this report. As described in Reference 1, Screen #4 is intended to result in a SWEL 1 that sufficiently represents a broad population of plant Seismic Class I equipment and systems to meet the objectives of the NRC 50.54(f) Letter. The following attributes were considered in selecting items from the SSEL for inclusion in SWEL 1:

#### **1. A variety of types of systems**

The equipment included on SWEL 1 is a representative sample of several systems that perform one or multiple safety functions. Further, the systems represented include both frontline and support systems as listed in Reference 1, Appendix E: Systems to Support Safety Function(s). Examples include Emergency Diesel Generators and related systems, Emergency Core Cooling systems (Residual Heat Removal, Reactor Core Isolation Cooling, Core Spray, High Pressure Coolant Injection), power systems (125 VDC, 120 VAC, 480 VAC), and Ultimate Heat Sink (High Pressure Service Water System and Emergency Service Water System). Note, however, that the Reference 1 Appendix E table of generic BWR safety function systems includes some systems that are not applicable for PBAPS Unit 2 because the SSEL was not required to include all potential shutdown paths, and some systems do not exist at PBAPS (e.g., Isolation Condenser).

#### **2. Major new and replacement equipment**

The equipment included on SWEL 1 does not include items that have been recently modified or replaced. Due to the amount of modifications performed in the 1990's



as part of SQUG and IPEEE programs, PBAPS Unit 2 has not made significant modifications to Seismic Class 1 equipment recently.

**3. A variety of types of equipment**

The equipment class is identified for each item on SWEL 1. The equipment included on SWEL 1 is a representative sample from each of the classes of equipment used in the SSEL, which are the same as the equipment classes used in Reference 1. At least one piece of equipment from each class is included on SWEL 1, except for Class 11, "Chillers;" Class 12, "Air Compressors," and Class 13, "Motor Generators." There is no Class 2 Low Voltage Switchgear (LVS) equipment in the Unit 2 SWEL, but there is one Class 2 LVS in the Unit 0 (common) SWEL. No Seismic Class I chillers, air compressors, or motor generators were included in the SSEL, and none have been identified that support the five Safety Functions included in this project.

**4. A variety of environments**

The location for each item is identified on SWEL 1. The equipment included on SWEL 1 is a representative sample from a variety of environments (locations) in the station. These environments include the Screen House, Pump Structure, Diesel Generator Structure (common to both units), Emergency Cooling Tower (common to both units), Turbine Building, Reactor Building, and Drywell.

**5. Equipment enhanced due to vulnerabilities identified during the IPEEE program**

As discussed in Section 7 of this report, a significant number of IPEEE seismic-related plant improvements were implemented, or were committed to be implemented for PBAPS Unit 2. Table 7-1 shows that all committed changes were made and identifies the sample of this equipment that was included in the SWEL.

**6. Contribution to risk**

In selecting items for SWEL 1 that met the attributes above, some items with similar attributes were selected based on their higher risk-significance. To determine the relative risk-significance, the Risk Achievement Worth (RAW) and Fussell-Vesely (F-V) importance for a Loss of Off-Site Power (LOOP) scenario from the internal plant PRA were used (Reference 5, Tables 2 and 4). The LOOP scenario from the internal plant PRA includes lists of the 20 pieces of equipment for Unit 2 with the highest F-V risk ranking (0.017 and above) and highest RAW risk ranking (23.6 and above). The lists of risk-significant components for the LOOP PRA (Reference 5) were compared with the draft SWEL 1 to confirm that a reasonable sample of risk-significant components (relevant for a seismic event) were included on SWEL 1.

In accordance with Reference 1, equipment access was considered when selecting the sample components. Equipment in lower dose areas were selected for the walkdown sample instead of the same component in a different train, but located in a higher dose area.

### **4.3 SWEL 2 – SPENT FUEL POOL RELATED ITEMS**

In accordance with Reference 1, four screens are used to select the SSCs to be included on the second Seismic Walkdown Equipment List (SWEL 2), as described in the following sections.

#### **4.3.1 Screen #1 - Seismic Class I**

Only Seismic Class I SSCs, or SSCs that could result in rapid drain-down of the SFP (see Screen #4 below), are to be considered for inclusion in SWEL 2. As described in Reference 1, the adequacy of SFP structures is assessed by analysis and is not included in the scope of these walkdowns.

The review of the design and licensing basis documentation for the SFP identified no Seismic Class I equipment for PBAPS Unit 2 (Reference 2, Appendix C and Reference 6). Therefore, no Seismic Class I items are included in SWEL 2.

It is noted that the spent fuel pool cooling and clean-up system is cross-connected to the RHR system (Reference 6, E-2, 3). This is done with a spool piece and does not result in any spent fuel pool cooling and clean-up components being safety-related.

#### **4.3.2 Screen #2 – Equipment or Systems**

This screen considers only those items from Screen #1 that are appropriate for an equipment walkdown process. Since no Seismic Class I items are included in SWEL 2, no items meet the Screen #2 requirement.

#### **4.3.3 Screen #3 – Sample Considerations**

Sample considerations do not apply because no Seismic Class I items meet the Screen #1 requirement.

#### **4.3.4 Screen #4 – Rapid Drain-Down**

This screen identifies items that could allow the spent fuel pool to drain rapidly. Rapid drain-down is defined as lowering of the water level to the top of the fuel assemblies within 72 hours after the earthquake. Consistent with Reference 1, the scope of items included in this screen is limited to the hydraulic lines connected to the SFP and the equipment connected to those lines. For the purposes of this program, the SFP gates are considered to be installed and the SFP cooling system is in its normal alignment for power operations. The SFP gates are passive devices that are integral to the SFP. As such, they are considered capable of withstanding a design basis earthquake and do not allow for a rapid drain-down of the SFP.

Based on review of the PBAPS Unit 2 SFP design information, there are no connections to the fuel storage pool which could allow the fuel pool to be drained below 10 feet above the top of active fuel (Reference 2, Section 10.3.4.2 and Reference 6). The spent fuel pool cooling and clean-up return lines are the only lines that extend below this level but are equipped with siphon breaker holes to prevent inadvertent pool drainage (Reference 6, Note 3). Therefore, no items are required to be added to SWEL 2 to address rapid drain down.

### **4.4 COMPOSITE SWEL**

As described in Section 4.1 above, the final Seismic Walkdown Equipment List (SWEL) for PBAPS Unit 2 is the combined SWEL 1 and SWEL 2. For PBAPS Unit 2, there are

no items in SWEL 2, so the composite SWEL is the same as SWEL 1. Appendix B includes the composite SWEL.

# 5

## Seismic Walkdowns and Area Walk-Bys

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### 5.1 OVERVIEW

Seismic Walkdowns and Area Walk-Bys were conducted by 2-person teams of trained Seismic Walkdown Engineers, in accordance with the EPRI Seismic Walkdown Guidance (Reference 1). The Seismic Walkdowns and Area Walk-Bys are discussed in more detail in the following sections.

### 5.2 SEISMIC WALKDOWNS

An overview of the equipment included in the Seismic Walkdowns is shown on the PBAPS Unit 2 SWEL and Unit 0 (common equipment with Unit 3) SWEL in Appendix B. A Seismic Walkdown Checklist (SWC) from Appendix C of Reference 1 was completed for each item on the SWEL, except for the deferred item identified at the end of the SWEL. Additionally, photos are included with each SWC to provide a visual record of the item and any significant comment noted on the SWC. Drawings and other plant design documents are cited in most of the SWCs, but they are not included with the SWCs because they are readily available in the plant's electronic document management system. Seismic Walkdowns were completed for all 84 items on the PBAPS Unit 2 SWEL, plus 29 of the 30 items on the Unit 0 (common) SWEL, for a total of 113 items, not including the 1 deferred.

#### 5.2.1 Anchorage Configuration Confirmation

As required by Reference 1 (page 4-3), the anchorage for at least 50% of the items were confirmed to be consistent with design documentation. The second to last column of Tables C-1 and C-2 show which items are line-mounted and therefore do not count in the anchorage confirmation total (marked "N/A"). Items evaluated for consistency with design documentation are marked "Y"; those that were not compared with design documentation are marked "N". See Table 5-1 below for the accounting of the 50% anchorage configuration confirmations, and the individual SWC forms in Appendix C for the specific documents used in each confirmation.

**Table 5-1. Anchorage Configuration Confirmation**

Unit 2 or Unit 0 (Common)?	No. of SWEL Items (A)	N/A Items (B)	Required to Confirm? (A-B)/2	Items Confirmed
2	84	17	34	34
0 (Common)	29	4	13	17
Unit 2 and Common	113	21	47	51

**5.2.2 Issue Identification**

None of the anomalies or issues identified by the SWEs during the equipment walkdowns were ultimately judged to be "Potentially Adverse Seismic Conditions" because in all cases it was concluded the anomaly or issue would not prevent the equipment from performing its safety-related function. Additionally, based on the IRs for each issue, all equipment affected by the as-found condition was determined to be functional. Table 5-2 provides a summary of the issues identified during the Seismic Walkdowns.

**Table 5-2. Issues Identified during Seismic Walkdowns**

Component ID	Description of Issue	Action Request ID	Actions Complete Y/N <sup>(Notes 1, 2)</sup>
20C003, 20C004C, 20C005A, 20C006C, LI2-2-3-113, LI2-3-86, LI-8027, LR/TR-8123B, (also AWC-U0-7)	The MCR ceiling's restraint system is consistent with design documentation but the design basis Calculation G-106-1 could not be located from records management or Iron Mountain. This issue is to re-constitute design analysis to supplement existing calculation 26-5/Z-12, specifically at MCR ceiling perimeter, during NTTF 2.1 seismic re-evaluation.	IR 01428651	No
20C003	There is a missing panel screw, inside the bottom of the first panel. Judged acceptable for seismic as-is, but inconsistent with design documentation.	IR 01425673	No
2BE055, 2BE056, 2GE058	Anchorage for ECCS room coolers does not match drawings but does match calculation.	IR 01437853 (Note 3)	No

**Table 5-2. Issues Identified during Seismic Walkdowns**

Component ID	Description of Issue	Action Request ID	Actions Complete Y/N <sup>(Notes 1, 2)</sup>
2AC065, 2BC065	Inconsistency between as-built configuration of 2AC065 and 2BC065 instrument racks and calculation PS-0930.	IR 01429745	No
0AG12, 0BG12, 0CG12, 0DG12	Inconsistency between the 0AG12, 0BG12, 0CG12, and 0DG12 anchor bolt size and vendor document E-5-155.	IR 01438055	No

Notes:

1. "Yes" indicates that corrective actions resulting from the issue are complete.
2. "No" indicates that corrective actions resulting from the issue are NOT complete. Actions are tracked by the IR number in the station Corrective Action Program.
3. IR 01411581 was originally identified on the SWCs as being applicable to this issue. Upon further investigation IR 01437853 was written to fully capture the issue.

### 5.3 AREA WALK-BYS

In accordance with Reference 1, Area Walk-bys were performed for each room or area within a large room which included one or more items on the SWEL. The last column of Tables C-1 and C-2 show the number of unique Area Walk-By Checklists (AWCs) completed during the walkdowns for PBAPS Unit 2 and Unit 0 (common). All completed AWCs are included in Appendix D. Photos are not included with the AWC forms because they are part of the SWC package of the identified equipment item. A total of 31 AWCs were completed for Unit 2, plus 13 for Unit 0 (common).

None of the anomalies or issues identified by the SWEs during the Area Walk-Bys were judged to be "Potentially Adverse Seismic Conditions" because in all cases the anomaly or issue would not prevent surrounding equipment from performing its safety-related function. Additionally, based on the IRs for each issue, all equipment affected by the as-found condition was determined to be functional.

Table 5-3 at the end of this section provides a summary of the issues identified in the Area Walk-Bys.

**Table 5-3. Issues Identified during Area Walk-Bys**

Component ID/Area	Description of Issue	Action Request ID	Actions Complete Y/N <sup>(Notes 1, 2)</sup>
AWC-U0-1	Open S-hook noted on light fixture above battery charger panel 3BD003.	IR 01413285	Yes
AWC-U2-2	There is a missing base screw (notes in AWC-U2-2 documents it as "anchorage mounting bolt") inside panel 20C032. Judged acceptable for seismic as-is but missing bolt should be replaced.	IR 01425994	No
AWC-U2-27	Fire protection pipe support near HPCI pump missing one of four bolts. Judged acceptable for seismic as-is, but missing bolt should be replaced.	IR 01425997	Yes
AWC-U2-22	Seismic housekeeping, unrestrained ladder	IR 01406272	Yes

Notes:

1. "Yes" indicates that corrective actions resulting from the issue are complete.
2. "No" indicates that corrective actions resulting from the issue are NOT complete. Actions are tracked by the IR number in the station Corrective Action Program.

# 6

## Licensing Basis Evaluations

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As noted in Sections 5.2.2 and 5.3, the issues identified during the Seismic Walkdowns and Area Walk-Bys were not determined to be "Potentially Adverse Seismic Conditions" because in all cases the anomaly or issue would not prevent the equipment from performing its safety-related function. Therefore, no formal Licensing Basis Evaluations were necessary and none were performed.



# 7

## IPEEE Vulnerabilities Resolution Report

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The Individual Plant Examination of External Events (IPEEE) report for PBAPS (Reference 7) and the NRC Safety Evaluation on the IPEEE report (Reference 8), identified a number of seismic vulnerabilities. This occurs since the IPEEE reviews were performed in parallel with the original SQUG seismic verification of various equipment. Each of the seismic vulnerabilities identified in Reference 7 were verified to be implemented and closed out per AR No. A1056479 (Reference 10). Additionally many of the identified IPEEE vulnerabilities were verified to be implemented during the seismic walkdowns. Table 7-1 below lists identified IPEEE (and A-46) vulnerabilities, indicates how each one was resolved, and identifies the specific items that were verified in the field during the walkdowns. Table 7-2 lists the PBAPS Unit 2 and Common IPEEE seismic vulnerabilities that were previously resolved by analysis. There are no outstanding IPEEE vulnerabilities and all previously identified IPEEE vulnerabilities have been resolved.

Table 7-1. PBAPS Unit 2 and Common IPEEE Seismic Vulnerabilities Resolutions

Component ID	Issue	Planned Resolution	Resolution from A/R # A1056479	Sample Component Walkdown Resolution
00B97 00B98 00B99	Interaction concerns.	Breaker hoist will be restrained or removed.	Work completed under work order C0188074 on August 1, 2000.	None
20B10/11/12/13	Some cubicles missing plug welds to embedded angle. Breaker hoists are interaction concern, not prevented from tipping. Adjacent oil filled transformers are unanchored.	Add missing plug welds. Breaker hoist will be restrained or removed. Modification will replace with ventilated dry type transformers that are properly anchored.	Work completed for plug welds under work orders C0181065, and C0181068 on August 1, 2000, and under work orders C0181067 and C0181069 on October 16, 2000. Work completed for breaker hoist under work order C0182465 on August 1, 2000. A walkdown was performed on April 24, 1997 to verify that all of the new transformers were installed for MOD 5099.	None
00B94/95/96	Unanchored switchgear and transformers. Interaction concern with breaker hoist.	Switchgear will be anchored. Hoist will be restrained or removed.	Work completed for anchorage under work orders C0189242 and C0189243 on August 1, 2000, and C0189244 on October 16, 2000. Work completed for breaker hoist under work orders C0188074 on August 1, 2000.	None
20A15/16/17/18	Door latching mechanisms are only engaged at center of door. Latching bolts at top and bottom are not engaged. 20A16, 17, 18 have spare breakers which are not adequately secured.	Latches will be fastened and neoprene pads may be provided. Spare breakers will be removed or secured.	Work completed under work order C0179957 on August 1, 2000 and work order C0183982 on October 16, 2000. Per Item 4, p. 17 of A1056479, as of August 1, 2000, spare breakers removed and will not be stored in switchgear rooms per procedure SO 54.7.C. No PIMS work recorded for removal of spare breakers.	20A15 and 20A16 included in walkdown sample. Confirmed door latch issue resolved.
20X133/150	30KVA transformer coils are missing 2 of 4 holding bolts.	Perform evaluation of coil anchorage and modify if required.	ECR PB 97-02258 has been completed. CALC PS-0947 reviewed the transformers and concluded that the outlier conditions are seismically acceptable (September 29, 1997).	N/A – no need for field confirmation.
20X30/31/32/33	Oil filled transformers are unanchored.	Replace with ASS 1000KVA VPE ventilated dry type transformer properly anchored.	A walkdown was performed on April 24, 1997 to verify that all of the new transformers were installed for MOD 5099.	20X30, 20X032, and 20X033 included in walkdown sample. Confirmed issue resolved.
00X103	Anchorage of transformer coils to enclosure support surface indeterminate.	Vendor drawings will be reviewed and evaluated and if necessary anchorage will be reworked to comply.	ECR PB 97-02258 has been completed. CALC PS-0947 reviewed the transformers and concluded that the outlier conditions are seismically acceptable (September 29, 1997).	None

Table 7-1. PBAPS Unit 2 and Common IPEEE Seismic Vulnerabilities Resolutions

Component ID	Issue	Planned Resolution	Resolution from A/R # A1056479	Sample Component Walkdown Resolution
0AX26/0BX26/0CX26	Anchorage could not be verified.	Transformer will be anchored.	Work completed under work order C0189169 on August 1, 2000.	None
2AP42/2BP42/2CP42/2DP42 0AP57/0BP57	Pump casing and shaft are greater than 20 ft. Non-tied down yard gantry crank could fall on pump house.	Analytic evaluation proved pump casings and shafts acceptable.  Yard crane will be restrained when not in use.	Analysis completed as of IPEEE submittal May 1996.  Work completed under A/R A1188705 on August 1, 2000.	2CP042 and 0BP057 included in walkdown sample.  Confirmed issue resolved.
MO-33-0498	Valve has interaction concern with radiation element outlet.	Support for radiation element outlet will be modified.	Work completed under work order C0182155 on August 1, 2000.	MO-0-33-0498 included in walkdown sample.  Confirmed issue resolved.
AO2-03-33	Distances from pipe centerline to top of valve operator is outside of experience database.	Review documentation and perform analysis if required to demonstrate seismic capacity.	ECR PB 97-02258 has been completed. CALC PS-0947 reviewed the valve and concluded that the outlier condition is seismically acceptable (September 29, 1997).	N/A – no need for field confirmation.
MO2-13-4487	Valve operator weights and/or centerline distances are outside of the experience database.	Review documentation and perform analysis if required to demonstrate seismic adequacy.	ECR PB 97-02258 has been completed. CALC PS-0947 reviewed the MOV and concluded that the outlier conditions are seismically acceptable (September 29, 1997).	None
0AV035/36 0BV035/36	Overhead ducts need to be reviewed as part of the IPEEE for seismic adequacy.	Evaluate overhead systems and modify as required or develop suitable operator actions.	ECR 97-00992 was taken to approved (and complete) status on July 24, 1997. The required physical (MOD) work in the plant was tracked by A1056479-12.	0AV036, 0BV035, and 0BV036 included in walkdown sample.  No issues identified with overhead ducting.
00F043	Overhead ducts are an interaction concern.	Evaluate overhead systems and modify as required or develop suitable operator actions.	ECR 97-00992 was taken to approved (and complete) status on July 24, 1997. The required physical (MOD) work in the plant was tracked by A1056479-12.	None
0AV034	Attached heating piping at upper nozzles is poorly supported.  Overhead ducts are an interaction concern.	Evaluate steam piping and modify if required. Evaluate overhead systems and modify as required or develop suitable operator actions.	ECR 97-00992 was taken to approved (and complete) status on July 24, 1997. The required physical (MOD) work in the plant was tracked by A1056479-12.	None
PO2-0223-1 PO2-0223-3	Tubing from Delta P switches may be impacted by conduit. Conduit is supported by beam clamps.	Conduit will be supported by method which does not rely on friction to transfer vertical load.	Work completed under work order C0193836 on August 1, 2000.	PO2-0223-3 included in walkdown sample.  Confirmed issue resolved.

Table 7-1. PBAPS Unit 2 and Common IPEEE Seismic Vulnerabilities Resolutions

Component ID	Issue	Planned Resolution	Resolution from A/R # A1056479	Sample Component Walkdown Resolution
20D21/22/23	Depth of panels are less than that which is included in earthquake experience database.  Anchor bolts have 2 1/4" eccentricity and in addition, corner plates are too flexible and do not provide an adequate load path.	Top supports will be provided and existing floor anchorage will be evaluated and modified as required.	Work completed under work order C0190182 on December 14, 2000.	None
2AD01/2BD01/2CD01/2DD01	Batteries are more than 450 lbs (actual weight 700 lbs.) which is outside experience database. Also, end rails are not snug with batteries. Also overhead fluorescent lights are suspended with chains having open S-hooks	Review of existing data showed that the batteries are qualified to IEEE-323 (1974) and IEEE-344 (1975).  A snug fit will be provided at end rails and the S-hooks will be closed.	Work completed under work order C0193773 on August 1, 2000.	2AD01 and 2BD01 included in walkdown sample.  Confirmed issue resolved.
20D37	Interaction concerns  These are housekeeping issues; large number of drums, eye wash on wooden table, liquid processing equipment and roof pipe with victaulic joints in the vicinity. Also, Inverter 20037 does not have drip shield installed.	Drip shield will be installed.  Area will be cleaned up and any material that must remain will be restrained.	Work completed under work order C0184003 on August 1, 2000.  As of on August 1, 2000, loose items removed. No PIMS record of work.	20D37 included in walkdown sample.  Confirmed issue resolved.
0AG12/0BG12/0CG12/0DG12	Interaction concerns with overhead crane controller.  Local panel on vibration isolators without lateral capacity.	Overhead crane controller will be tied down when not in use.  Vibration isolators will be modified to preclude dislodging in SSE.	Work completed on crane controller under work order C0193768 on August 1, 2000.  Work completed on vibration isolators under work orders C0181161, C0181153, C0181159, and C0179951 on August 1, 2000.	0AG012 and 0DG012 included in walkdown sample.  Confirmed issue resolved.
DPS-20224-1 DPS-20224-3	Interaction with tubing to sensor on duct.	Conduit will be supported by method which does not rely on friction to transfer vertical load.	Work completed under work order C0193836 on August 1, 2000.	None
0AG13/0BG13/0CG13/0DG13 0AC097/0BC097/0CC097 0DC097	Interaction concerns exist regarding overhead crane controller.	Overhead crane controller will be tied down when not in use.	Work completed under work order C0193768 on August 1, 2000.	0AC097 included in walkdown sample.  Confirmed issue resolved.
00C29A/B/C/D 20C124	Interaction concerns with housekeeping issues in the Control Room.	Items will be removed or restrained.	Work completed under work order C0183590 on August 1, 2000.	00C29B included in walkdown sample.  Confirmed issue resolved.

Table 7-1. PBAPS Unit 2 and Common IPEEE Seismic Vulnerabilities Resolutions

Component ID	Issue	Planned Resolution	Resolution from AJR # A1056479	Sample Component Walkdown Resolution
20C32/33 20C722A/B 20C818 20C819	Cabinets are not bolted to the adjacent cabinet. Interaction concerns exist with adjacent non-safety cabinets.	Adjacent cabinets will be tied together front and back.  Table will be blocked and located so tipping will not cause impact.  Cushioning will be provided between adjacent non-safety cabinet and impact loading will be evaluated.	Work completed under work order C0190182 on December 14, 2000.	20C722A included in walkdown sample.  Confirmed issue resolved.
20C139	Interaction concern with attached procedure book.	Cable will be lengthened so if book falls, it will not hit panel	Work completed under work order C0193836 on August 1, 2000.	None
Pipe stanchion supports Rx Bldg. 195' RW Bldg. 165'	Lateral load criteria not met.	Install knee brace at top of stanchion at midspan of raceway and attach to floor or install lateral supports.	Work completed under work orders C0189101, C0189160, and C0190050 on August 1, 2000.	None – issue not applicable to this walkdown.
El. 165' Mech. Equipment Room HVAC ducting	Various duct and interaction issues including aux. steam piping.	Perform evaluation of overhead systems and modify as required or develop suitable operator actions	Work completed under work orders C0190892, C0187741, C0191039, and C0182488 on August 2, 2000, and under work order C0195436 on December 18, 2000.	None

Table 7-2. PBAPS Unit 2 and Common IPEEE Seismic Vulnerabilities Resolved by Analysis

Component ID	Issue	Planned Resolution	Actual Resolution of Condition	Resolution Date
20B36 00B53 00B54 00B55 00B56	Anchorage evaluation required.	Evaluate anchorage.	Anchorage evaluation completed and anchorage of MCCs are adequate.	5/1997
AO2-01-080A/B/C/D AO2-01-086A/B/C/D	Distance from pipe centerline to top of valve operator is outside of experience database.	Evaluate centerline distance of valve operators.	Calculations show valves have acceptable seismic capacities.	2/1996
MO2-10-016A/B/C/D MO2-23-019 MO2-23-025 MO2-10-025A/B MO2-13-027 MO2-13-131	Valve operator weights and/or centerline distances are outside of the experience database.	Evaluate weight and centerline distance of valve operators.	Existing documentation review indicates valves are qualified to an acceptable seismic acceleration.	5/1996
MO2-30-2233A/B	Cast iron yoke	Evaluate suitability of cast iron yoke.	Existing documentation was reviewed and components were determined to be seismically adequate.	5/1996
SV-8130B	Component could not be located, therefore the caveats and interaction effects could not be verified.	Evaluate component.	Drawing review was performed and component determined to be seismically adequate.	5/1996
2AC65/2BC65	Anchorage does not screen.	Evaluate anchorage.	Evaluation of anchorage was performed and documented in calculation number PS-0930, Rev. 0. During the field walkdown, the as-found configuration for 2AC65 and 2BC65 was found to be inconsistent with calculation, but determined to be acceptable. See Section 5.2.2 of this report.	5/1997
2AE24/2BE24/2CE24/2DE24	Heat exchanger anchorage evaluation is unknown.	Evaluate anchorage.	Review of RHR Heat Exchanger modification calculations evaluated anchorage capacity for the RHR Heat Exchangers and found them to be seismically adequate.	1/2004

# 8

## Peer Review

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### 8.1 OVERVIEW

In accordance with the EPRI Seismic Walkdown Guidance (Reference 1), a peer review of this project was performed during the preparation of the Seismic Walkdown Equipment List (SWEL), during implementation of the seismic walkdowns and area walk-bys, and following completion of the issue resolutions. Specifically, the peer review addresses the following activities:

- Review of the selection of the structures, systems, and components, (SSCs) that are included in the Seismic Walkdown Equipment List (SWEL),
- Review of a sample of the checklists prepared for the Seismic Walkdowns & Walk-Bys,
- Review of any licensing basis evaluations,
- Review of the decisions for entering the potentially adverse conditions in to the plant's Corrective Action Program (CAP), and
- Review of the final submittal report.

The complete Peer Review Report is included in Appendix F.

### 8.2 REVIEW OF SWEL

The peer review checklist for SWEL is included as an attachment to the Peer Review Report. This checklist was used to ensure that the SWEL 1, SWEL 2, and composite final SWEL meet the criteria of Reference 1. All peer review comments on the SWEL were resolved.

### 8.3 REVIEW OF SAMPLE SEISMIC WALKDOWN AND AREA WALK-BY CHECKLISTS

Approximately 31% of the Seismic Walkdown packages, i.e., SWC forms, photographs, and drawings (where applicable) were reviewed by the peer review team. Additionally, interviews were conducted with both teams of Seismic Walkdown Engineers to ensure that the seismic walkdowns and area walk-bys were performed in accordance with Reference 1.

The peer review team did not require any clarifications be added to the SWC and AWC forms reviewed.

#### **8.4 REVIEW OF LICENSING BASIS EVALUATIONS**

As discussed in Sections 5 and 6 of this report, the issues identified during the seismic walkdowns and area walk-bys did not threaten the ability of Seismic Class I equipment to perform their safety functions. The specific items that have been entered in the PBAPS Corrective Action Program (CAP) were reviewed, and no concerns with the assessments or proposed resolutions were identified.

#### **8.5 REVIEW OF SUBMITTAL REPORT**

The signature of the Peer Review Team Leader on the cover of this report indicates a satisfactory review and resolution of any comments and confirms that all necessary elements of the peer review were completed.



# 9

## References

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Reference drawings related to the walkdown of SWEL items are documented on the Seismic Walkdown Checklists (SWCs) in Appendix C, and if applicable, on the Area Walk-By Checklists (AWCs) in Appendix D.

1. EPRI Technical Report 1025286, *Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic*, dated June 2012.
2. *Peach Bottom Atomic Power Station Updated Final Safety Analysis Report (UFSAR)*, Revision 23.
3. PECO Document No. NE-117-51, *Safe Shutdown Equipment List (SSEL) for Peach Bottom Atomic Power Station*, Revision 0.
4. Not used.
5. Exelon Document No. PB-MISC-009, *Risk Ranking to Support NTTF 2.3 Seismic Walkdowns*, Revision 0.
6. PBAPS Drawing No. M-363, P & I Diagram - Fuel Pool Cooling and Clean-up, Sheet 1, Revision 40.
7. PECO Energy Company, *Peach Bottom Atomic Power Station Units 2 and 3, Individual Plant Examination for External Events*, May 1996.
8. NRC Letter (B. C. Buckley) to PECO (J. A. Hutton), Review of Peach Bottom Atomic Power Station, Units 2 and 3, Individual Plant Examination of External Events Submittal (TAC NOS. M83657 AND M83658), dated November 22, 1999.
9. Facility Operating License No. DPR-44, NRC Docket No. 50-277, Amendment No. 268, Dated August 8, 2007.
10. PBAPS Action Request A1056479, Last updated 12/20/2000.

# Annex A

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## Updated Transmittal # 1

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# A1 Introduction

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## A1.1 PURPOSE

This updated transmittal report is being provided in compliance with the requirements contained in Enclosure 3 of the NRC 50.54(f) letter dated 3/12/12 (Ref. 11). This new report section, Annex A, contains the results of the follow-on activities that have taken place since the initial NRC Transmittal sent by Exelon for Peach Bottom Atomic Power Station Unit 2, under letter number RS-12-173 on November 19, 2012 (Ref. 12). Annex A, includes follow-on seismic walkdown results associated with NRC Commitments 1 and 2 listed in Enclosure 3 of the letter (Ref. 12). The inspection results of Commitment 1 are also documented under letter number RS-14-001 submitted on March 25, 2014 (Ref. 14) which provided an update to the Unit 3 report since this specific item is common to PBAPS Units 2 and 3. Additionally, the update includes the current status of the resolution of conditions found during the initial seismic walkdowns and area walk-bys as documented in Tables 5-2 and Table 5-3, respectively (Ref. 12).

Commitment 1, for the supplemental inspection of the one (1) PBAPS Unit 2 item identified in Enclosure 3 (Ref. 12), deferred due to inaccessibility has been completed and the results are included in this update since this specific item is common to PBAPS Units 2 and 3.

Commitment 2, for the completion of the 3 remaining internal electrical cabinet inspections listed in Table E-2 and E-3 (Ref. 12), is now complete. Exelon provided a revised Commitment 13 (Ref. 13) to complete these three (3) items by July 31, 2014. These inspections have been completed by the commitment date and the results are documented in this update. Therefore, Commitment 14 (Ref. 13) for the final report is completed by this transmittal.

The initial anchorage configuration confirmation shown in Table 5-1 (Ref. 12) is updated with new totals in Table A5-1 to include the deferred items.

The initial NRC Transmittal report documented that 5 conditions identified during the seismic walkdowns, and listed in Table 5-2, remained open. This update documents that 4 out of the 5 conditions are resolved with the follow-on actions complete, and the final item is tracked in the Corrective Action Program under IR 1428651.

The initial NRC Transmittal report documented that one (1) out of four (4) conditions identified during the area walk-bys, and listed in Table 5-3, remained open. This update documents that the 1 remaining condition is now resolved.

Annex A, includes updates to each report section where the status has changed or new information is available in accordance with Section 8 of EPRI 1025286, "Seismic Walkdown Guidance – For Resolution of Fukushima Near Term Task Force Recommendation 2.3 Seismic" (Ref. 1).

## **A1.2 BACKGROUND**

See Section 1.1.

## **A1.3 PLANT OVERVIEW**

See Section 1.2.

## **A1.4 APPROACH**

See Section 1.3.

## **A1.5 CONCLUSION**

As of July 16, 2014, all Seismic Walkdowns have been completed at Peach Bottom Atomic Power Station Unit 2. Including the 1 item deferred due to inaccessibility along with all 3 of the remaining supplemental electrical cabinet inspections. The walkdowns were performed in accordance with the NRC endorsed walkdown methodology. Area Walk-Bys were also completed, as required, during these follow-on activities. No degraded, nonconforming, or unanalyzed conditions that require either immediate or follow-on actions were identified.

There are no additional follow-on activities to complete the efforts to address Enclosure 3 of the 50.54(f) letter.

No deficiencies were generated during the follow-on walkdowns. The updated completion status for the previous IRs is shown in Table A5-2 and Table A5-3 in Section A5 of this Annex A.

With completion of these walkdowns and this report transmittal, Commitments 1 & 2 (Ref. 12) and Commitments 13 & 14 (Ref. 13) may be closed.

# **A2** Seismic Licensing Basis

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See Section 2, no new licensing basis evaluations resulted from the follow-on walkdown activities.



# A3 Personnel Qualifications

## A3.1 OVERVIEW

This section of the report identifies the personnel that participated in the NTTF 2.3 Seismic Walkdown efforts. A description of the responsibilities of each Seismic Walkdown participant's role(s) is provided in Section 2 of the EPRI Guidance (Reference 1). Resumes provided in Appendix A, and Appendix AA in this Annex A, provide detail on each person's qualifications for his or her role.

## A3.2 PROJECT PERSONNEL

Table A3-1 below summarizes the names and corresponding roles of personnel who participated in the NTTF 2.3 Seismic Walkdown effort.

**Table A3-1. Personnel Roles**

Name	Equipment Selection Engineer	Plant Operations	Seismic Walkdown Engineer (SWE)	Licensing Basis Reviewer	IPEEE Reviewer	Peer Reviewer
B. Frazier (MPR)			X			
K. Gantz (MPR)			X			
B. Birmingham (Exelon)		X				
T. Gallagher (Exelon)			X	X (Note 3)		X (Note 1, 2)
J. Lucas (Exelon)			X			
P. Kester (Exelon)						X (Note 2)

**Notes:**

1. Site Lead Structural Engineer for 2.1 & 2.3 Seismic, therefore acted as Peer Review Team Leader for this Annex A. Peer Reviewer of the Annex A walkdowns remained independent and did not review any of the work they performed.
2. SQUG Qualified.
3. Performed role for initial walkdowns only.

### **A3.2.1 MPR Associates Personnel**

See Section 3, no new MPR Associates participated in the follow-on activities.

### **A3.2.2 Additional Personnel**

The following additional personnel participated in the follow-on activities:

- Ms. Gallagher is the Exelon Site Structural LRE for the 2.1 Seismic Hazard Evaluations and 2.3 Seismic Walkdowns. She has a BS degree in Civil Engineering from the Pennsylvania State University and has over 7 years of nuclear power experience. She has been trained as an EPRI Seismic Walkdown Engineer and is SQUG Qualified. She has been involved with all aspects of plant modification/configuration change activities at Peach Bottom and at other various nuclear power plants.
- Mr. Kester is an Exelon Site Senior Design Engineer with over 20 years of experience at Peach Bottom. He has a BS degree in Mechanical Engineering from Princeton University and a MS degree in Civil Engineering from Drexel University. Mr. Kester is a Seismic Capability Engineer (SQUG Qualified) and is the Program Manager for Structural Maintenance Rule Structures Monitoring here at Peach Bottom. He is involved with all aspects of plant modification/configuration change activities. Other activities include penetration seals, hazard barrier control, heavy load rigging evaluations, lead shielding, scaffolding and other support activities.
- Mr. Lucas is an Exelon Site Senior Design Engineer with over 25 years of industry experience. He has a BS degree in Nuclear Engineering from Pennsylvania State University and an MBA from Texas Christian University. Mr. Lucas is a licensed Professional Engineer in the State of Delaware. He is the Site LRE for the Peach Bottom Response to NTF Orders and Recommendations resulting from Fukushima.
- Mr. Birmingham is a Contractor Operations Representative with over 32 years of industry experience in the field of Nuclear Power Plant Operations, Management, Training and Procedure Writing. He has been assigned to perform as the Operations Representative for the MSO, ASD and Fukushima Projects at Peach Bottom. He was a Nuclear Senior Reactor Operator (SRO), On Shift Control Room Supervisor for 17 years.

# **A4** Selection of SSCs

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See Section 4, no changes were made to the SWEL for the follow-on walkdowns.

# A5 Seismic Walkdowns and Area Walk-Bys

## A5.1 OVERVIEW

The follow-on Seismic Walkdowns and Area Walk-Bys were conducted by 2-person teams of trained Seismic Walkdown Engineers, in accordance with the EPRI Seismic Walkdown Guidance (Reference 1). The Seismic Walkdowns and Area Walk-Bys are discussed in more detail in the following sections.

## A5.2 SEISMIC WALKDOWNS

The results of the follow-on Seismic Walkdowns were documented in Appendix AC of this Annex A, using the Seismic Walkdown Checklist (SWC) template provided in the EPRI guidance document. Seismic Walkdowns were performed and the SWC's were completed for 1 of 1 item identified in Table E-1 and 3 of 3 items identified in Tables E-2 and E-3. Additionally, photographs have been included with most SWC's to provide a visual record of the item along with any significant comments noted on the SWC.

The Seismic Walkdown Checklists (SWC's) for these four (4) components are documented in Appendix AC of this Annex A to indicate the results of these deferred and supplemental electrical cabinet internal inspections.

### A5.2.1 Anchorage Configuration Confirmation

No additional configuration verification was required as shown in Table A5-1 below. The number of SWEL items increased to include the 1 deferred item. The 3 supplemental internal cabinet inspection items were already included in the original Table 5-1.

**Table A5-1.** Anchorage Configuration Confirmation

Unit 2 or Unit 0 (Common)?	No. of SWEL Items (A)	N/A Items (B)	Required to Confirm? (A-B)/2	Items Confirmed
2	84	17	34	34
0 (Common)	30	4	13	17
Unit 2 and Common	114	21	47	51

**A5.2.2 Issue Identification**

No adverse seismic conditions were identified during the follow-on walkdown activities.

Per Section 5.2.2 and Table 5-2, during the previous Seismic Walkdowns five (5) conditions were identified and entered into the Corrective Action Program. Corrective actions were completed for 4 of the 5 items. Table A5-2 of this Annex A provides an updated summary of the conditions and the status of the corrective actions to address these conditions.

**Table A5-2. Issues Identified during Seismic Walkdowns**

Component ID	Description of Issue	Action Request ID	Actions Complete Y/N <sup>(Notes 1, 2)</sup>	Action Taken
20C003, 20C004C, 20C005A, 20C006C, LI2-2-3-113, LI2-3-86, LI-8027, LR/TR-8123B, (also AWC-U0-7)	The MCR ceiling's restraint system is consistent with design documentation but the design basis Calculation G-106-1 could not be located from records management or Iron Mountain. This issue is to re-constitute design analysis to supplement existing calculation 26-5/Z-12, specifically at MCR ceiling perimeter, during NTTF 2.1 seismic re-evaluation.	IR 01428651	No	
20C003	There is a missing panel screw, inside the bottom of the first panel. Judged acceptable for seismic as-is, but inconsistent with design documentation. <sup>(Note 4)</sup>	IR 01425673	Yes	FIN replaced missing hardware.

**Table A5-2. Issues Identified during Seismic Walkdowns**

Component ID	Description of Issue	Action Request ID	Actions Complete Y/N <sup>(Notes 1, 2)</sup>	Action Taken
2BE055, 2BE056, 2GE058	Anchorage for ECCS room coolers does not match drawings but does match calculation.	IR 01437853 (Note 3)	Yes	Drawings S-970, S-971, S-972, S-973, S-975, S-977 are posted against ECR 12-00027
2AC065, 2BC065	Inconsistency between as-built configuration of 2AC065 and 2BC065 instrument racks and calculation PS-0930.	IR 01429745	No	ECR 13-00498 was prepared. Work to install missing anchors is scheduled to be performed during P2R20 (scheduled start date: 11/03/14).
0AG12, 0BG12, 0CG12, 0DG12	Inconsistency between the 0AG12, 0BG12, 0CG12, and 0DG12 anchor bolt size and vendor document E-5-155.	IR 01438055	Yes	Vendor document E-5-155 and new calculation PS-1091 are posted against ECR 13-00459. PS-1091 reconstitutes the engine generator skid assembly calculation to reflect the as-built configuration.

Notes:

1. "Yes" indicates that corrective actions resulting from the issue are complete.
2. "No" indicates that corrective actions resulting from the issue are NOT complete. Actions are tracked by the IR number in the station Corrective Action Program.
3. IR 01411581 was originally identified on the SWCs as being applicable to this issue. Upon further investigation IR 01437853 was written to fully capture the issue.
4. Description changed from original submittal.

### A5.3 AREA WALK-BYS

The purpose of the Area Walk-Bys is to identify potentially adverse seismic conditions associated with other SSCs located in the vicinity of the items being inspected. The results of the Area Walk-Bys were documented on the AWCs included in Appendix AD. A separate AWC was filled out for each area inspected. A single AWC was completed for areas where more than one item was located.

No adverse conditions were identified during the Area Walk-Bys associated with the follow-on walkdowns.

Per Section 5.3.1 and Table 5-3, during the previous seismic walkdowns four (4) conditions were identified and entered into the Corrective Action Program. Table A5-3 of this Annex A provides an updated summary of the conditions and the status of the corrective actions to address these conditions. Corrective actions were completed for all 4 of the 4 conditions identified.

**Table A5-3. Issues Identified during Area Walk-Bys**

Component ID/Area	Description of Issue	Action Request ID	Actions Complete Y/N <sup>(Notes 1, 2)</sup>	Action Taken
AWC-U0-1	Open S-hook noted on light fixture above battery charger panel 3BD003. <small>(Note 3)</small>	IR 01413285	Yes	S-hook closed.
AWC-U2-2	There is a missing base screw (notes in AWC-U2-2 documents it as "anchorage mounting bolt") inside panel 20C032. Judged acceptable for seismic as-is but missing bolt should be replaced. <small>(Note 3)</small>	IR 01425994	Yes	FIN – tapped hole and inserted 5/8" bolt.
AWC-U2-27	Fire protection pipe support near HPCI pump missing one of four bolts. Judged acceptable for seismic as-is, but missing bolt should be replaced.	IR 01425997	Yes	Upon further inspection of pipe support, no bolt was missing and no work performed.
AWC-U2-22	Seismic housekeeping, unrestrained ladder	IR 01406272	Yes	Operations returned ladder to proper storage location.

Notes:

1. "Yes" indicates that corrective actions resulting from the issue are complete.
2. "No" indicates that corrective actions resulting from the issue are NOT complete. Actions are tracked by the IR number in the station Corrective Action Program.
3. The description was revised from the original submittal.

# **A6** Licensing Basis Evaluations

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See Section 6, no new licensing basis evaluations were performed as a result of conditions identified during the follow-on Walkdowns or Area Walk-Bys.



# **A7 IPEEE Vulnerabilities Resolution Report**

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See Section 7, no changes of the IPEEE vulnerabilities resolutions were made for this Annex A.

# A8 Peer Review

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A peer review team consisted of at least two individuals, was assembled and peer reviews were performed in accordance with Section 6: Peer Reviews of the EPRI guidance document. The Peer Review process included the following activities:

- Review of the selection of SSCs included in the follow-on walkdowns
- Review the checklists of items completed during the follow-on Seismic Walkdowns and Area Walk-Bys
- Review of Licensing basis evaluations, as applicable
- Review of the decisions for entering the potentially adverse conditions identified during the follow-on walkdowns into the CAP process
- Review of the final submittal report
- Provide a summary report of the peer review process in the submittal report

A peer review was performed independently from this report and the summary Peer Review Report is provided in Appendix AF of this Annex A.

# A9 References

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See Section 9 for references 1 - 10. The following new references were added for this Annex A:

11. 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
12. Exelon Generation Company, LLC 180-day Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Seismic Aspects of Recommendation 2.3 of the Near-Term Task force Review of Insights from the Fukushima Dai-ichi Accident, dated November 19, 2012 (RS-12-173)
13. Exelon Generation Company, LLC Proposed Resolution for Completion of the Seismic Walkdowns Associated with NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Seismic Aspects of Recommendation 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, dated September 16, 2013 (RS-13-213)
14. Supplemental Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Seismic Aspects of Recommendation 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, dated March 25, 2014 (RS-14-001)

# **Appendix AA**

## **Project Personnel Resumes and SWE Certificates**

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Resumes and certificates (where applicable) for the following people are found in Appendix AA of this Annex A:

T. Gallagher, .....	AA-2
P. Kester, .....	AA-6
J. Lucas, .....	AA-8
R. Birmingham.....	AA-10

## Tracey L. Gallagher

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### EDUCATION

Pennsylvania State University, B.S. Civil Engineering, 2007

### EXPERTISE

- Steel, Concrete, Foundation Design and Analysis
- Seismic Analysis of New and Existing Structures
- Design Programs: STAAD Pro., GTStrudl, PCA Column, APlan, MathCAD, Visio, Excel, AutoCAD

### EXPERIENCE

#### **Exelon Generation (7/2012 – Present)**

Lead Structural Engineer for the Fukushima 2.1 and 2.3 NTTF at Peach Bottom Atomic Power Station. Completed the EPRI Seismic Walkdown Engineer (SWE) Training.

Lead Structural Engineer on the Adjustable Speed Drive (ASD) project.

#### **Sargent & Lundy, LLC – Wilmington, DE (7/2007 – 6/2012)**

Structural Associate 3 – Design Engineering in the nuclear power industry.

- *Duke Power Company*
  - Provided design engineering and onsite installation support for the Protected Service Water (PSW) Building Project associated with Oconee Nuclear Station's Tornado and High Energy Line Break (HELB) Mitigation License Amendment.
- *PSE&G (Salem & Hope Creek Power Stations)*
  - Worked on a team which performed a Site Extent of Condition Assessment for the Unattended Openings Program (Security).
  - Design of concrete and steel Blast Proof Enclosures for Security Upgrades.
  - Design and Analysis of lifting lugs/steel structures to meet the regulatory requirements of NUREG 0612 and ANSI 14.6 "Special Lifting Devices"
  - Lead Structural Engineer on the Feedwater Heater Tube Bundle Replacement Project. Responsible for the analysis of the Turbine Building structure and sub grade concrete vaults for heavy load paths associated with the Rigging Plan. Provided field installation/outage support.
  - Lead Engineer on the replacement of the Reactor Pressure Vessel (RPV) Head Strongback and Carousel.
  - Seismic analysis of proposed and existing pipe supports, conduit supports and cabinets/panels for new loads.
- *Dominion Power Company*
  - Provided installation support for refueling outages at North Anna and Surry Power Stations. These consisted of major capacity up-rate projects which included the replacement of the Feedwater Heater Tube Bundles and the Generator Stator/Rotor.



- Responsible for the heavy haul path analysis and the re-evaluation of the Turbine Building structure for the increased weight of the new generator.
- *Exelon*
  - Peach Bottom Fall 2007 outage support

**Borough of State College – State College, PA (5/2006 – 8/2006)**  
Engineering Intern, Public Works Dept.

**PENNDOT – District 5-0 – Allentown, PA (5/2005 – 8/2005)**  
Engineering Intern

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### **QUALIFICATIONS AND TRAINING**

EPRI Seismic Walkdown Engineer (SWE) training, 2012

Exelon Qualified Structural Engineer

SQUG Qualified, 2014

### **MEMBERSHIPS**

Member, Women in Nuclear (WIN)

Member, Phi Sigma Rho - National Engineering Sorority

# *Certificate of Completion*

## **Tracey Gallagher**

**Training on Near Term Task Force  
Recommendation 2.3  
- Plant Seismic Walkdowns**

July 27, 2012

\_\_\_\_\_  
Date

*R.P. Kassawara*

\_\_\_\_\_  
Robert K. Kassawara  
EPRI Manager,  
Structural Reliability & Integrity



*Presents this*

# *Certificate of Achievement*

*to certify that*

**T. Gallagher**

*has completed the SQUG A46 Walkdown  
Screening and Seismic Evaluation Training Course  
held on May 12-16, 2014*



*R.P. Kassawara*

Robert P. Kassawara, EPRI  
SQUG Project Manager

*Richard G. Starck II*

Richard G. Starck II, MPR Associates, Inc.  
SQUG Instructor



# Paul R. Kester

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## EDUCATION

Princeton University 1987 - B. S. In Mechanical Engineering

Drexel University 1995 - M. S. In Civil Engineering

## PROFESSIONAL EXPERIENCE

1993 - present

EXELON Nuclear / PECO Energy - Peach Bottom Atomic Power Station

### Senior Design Engineer

- Program manager for structural Maintenance Rule implementation
- Program manager for penetration seals and hazard barrier control
- Responsible for station seismic designs and equipment qualification
- Responsible for heavy load rigging evaluations
- Responsible for design of plant structural modifications

1990 - 1993

Philadelphia Electric Company - Nuclear Group Headquarters

### Design Engineer

- Program manager for penetration seals and hazard barrier control
- Responsible for design of plant structural modifications
- Responsible for writing design and purchase specifications

1987 - 1990

Philadelphia Electric Company - Peach Bottom Atomic Power Station

### Construction Engineer

- Responsible for resolution of field design and installation problems
- Responsible for conceptual design idea development
- Responsible for developing installation and testing procedures for new equipment
- Responsible for final acceptance inspections for new equipment

## QUALIFICATIONS

- SQUG Seismic Walkdown and Evaluation Qualified Engineer (5 day course)
- EXELON Maintenance Rule Structures Monitoring / Program Coordinator
- Peach Bottom Structural System Manager



# CERTIFICATE OF ACHIEVEMENT

THIS IS TO CERTIFY THAT

*Paul Kester*

**HAS COMPLETED THE SQUG WALKDOWN SCREENING  
AND SEISMIC EVALUATION TRAINING COURSE**

**DECEMBER 10-14, 2001**



Richard G. Starck II, MPR Associates  
SQUG Training Coordinator

John M. Richards, Duke Energy  
SQUG Chairman

Robert P. Kassawara, EPRI  
SQUG Program Manager

## **Jesse Lucas, P.E., MBA**

### **Relevant Qualifications:**

- BS Nuclear Engineering, 7 years Exelon , 25 years industry experience
- MBA and understanding of Exelon Nuclear Project Authorization Process

### **Employment History:**

#### **Exelon Generation**

2004 - Present

- Design Engineer – responsible for various modifications and evaluations
- Engineering Services Engineer – responsible for department engineering budget, department self-assessments, and representing Engineering at the Station Ownership Committee.
- Lead Responsible Engineer (LRE) – Peach Bottom Response to NTTF Orders and Recommendations resulting from Fukushima
  - ⇒ Site LRE for Flood Feature Walkdowns in accordance with NEI 12-07
  - ⇒ Site LRE for Flood Reevaluations in accordance with CR-7046
  - ⇒ **Site Engineer for Seismic Walkdowns – completed EPRI Training on NTTF Recommendation 2.3 – Plant Seismic Walkdowns**
  - ⇒ Site Engineer for Spent Fuel Pool Instrumentation
  - ⇒ Site LRE for Hardened Containment Vent System
  - ⇒ Site LRE for FLEX Modifications – Mechanical and Electrical

#### **RCM Technologies, Inc.**

1993 – 2004

- Client Manger for of design services contracts with power industry clients

#### **Impell - ABB Corporation**

1991 - 1993

#### **Stone & Webster Inc.**

1986 - 1989

### **Education:**

#### **Texas Christian University**

MBA - Finance

#### **Pennsylvania State University**

BS - Nuclear Engineering

### **Licenses and Associations:**

- Professional Engineer – State of Delaware Registration Number 9586

# *Certificate of Completion*

## **Jesse Lucas**

**Training on Near Term Task Force  
Recommendation 2.3  
- Plant Seismic Walkdowns**

June 21, 2012

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Date

*R.P. Kassawara*

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Robert K. Kassawara  
EPRI Manager,  
Structural Reliability & Integrity

Robert Steele Birmingham  
1218 Furnace Road  
Airville, Pa 17302  
Email n2fix@aol.com  
(717) 858-4144

## Career Summary

A disciplined, goal oriented professional with over 32 years experience in the field of Nuclear Power Plant Operations, Management, Training, Procedure Writing, Major strengths are organization, attention to detail, problem solving, and change management.

Over 33 years experience as a volunteer fire fighter. Certified scuba diver with over 25 yrs experience.

## Work Experience

10/2010 -  
12-2013

Westwind Group LLC, Wrightsville Beach, North Carolina.  
Assigned to perform as the Operations Representative for the MSO, ASD and Fukushima projects at the Peach Bottom Atomic Power Station for Exelon Nuclear, Delta, Pennsylvania.

9/1992 -  
9/2009

Exelon Nuclear, Delta, Pennsylvania  
Nuclear Senior Reactor Operator, On shift Control Room Supervisor

Performed nuclear fuel element handling activities including transfer, core loading and unloading and fuel pool operations. Directed reactor operators and equipment operators during transient and emergency situations, in accordance with abnormal operating, off normal, operational transient and emergency operating procedures. Conducted operations and inspections outside of the control room. Provided oversight during system electrical switching and electric sub station activities. Authorized maintenance activities on units and changes in system and equipment status. Authorized the performance of surveillance testing and reviewed testing upon completion. Approved and authorized system and equipment blocking under the clearance and tagging process. Provided training to EO, RO and SRO trainees while on shift. Administered EO plant walk around exams for qualification. Coordinated the performance of the plant schedule for plant and equipment testing, equipment blocking and other work activities. Reviewed all documented plant deficiencies for regulatory and tech spec compliance, and for overall plant impact.

04/1996 -  
5/1998

Exelon Nuclear, Delta, Pennsylvania  
Initial Licensed Operator Instructor

Qualified as a classroom and control room simulator instructor and as a simulator operator. conducted classroom, simulator and in-plant training sessions for a class of initial reactor and senior reactor operator trainees. Conducted classroom and in-plant training for a class of initial equipment operator trainees. Maintained an active SRO license while an instructor, performing control room shift supervisor duties during weekends and load drops.

8/1991 - Exelon Nuclear, Delta, Pennsylvania  
9/1992 Trainee, Senior Reactor Operator

7/1988 - Exelon Nuclear, Delta, Pennsylvania  
9/1991 Reactor Operator, On shift Control Room RO

Responded to unit, system or equipment abnormalities, diagnosing the cause and recommending or taking action as required. Recorded data from control room indicators during rounds. Identified malfunctions of equipment, instruments or controls and reported the conditions to the supervisor. Monitored and operated turbines, generators, pumps and auxiliary power plant equipment. Implemented operational procedures during normal operations and during startups and shutdowns. Dispatched instructions to personnel through radio or telephone systems to coordinate auxiliary equipment operation. Adjusted reactor controls to position control rods and adjust recirc pump speed to regulate flux level, reactor period, coolant temperature and rate of power change in accordance with operating procedures. Performed plant surveillance testing in the control room and coordinated performance of testing outside of the control room. Develop and write system and equipment safety blocking permits under the clearance and tagging process.

8/1987 - Exelon Nuclear, Delta, Pennsylvania  
7/1988 Trainee, Reactor Operator

11/1981 Exelon Nuclear, Delta, Pennsylvania  
8/1987 Floor Operator

Responded as directed to unit, system or equipment abnormalities and reporting observations to the control room, and taking corrective actions as directed. Recorded data from plant indicators during performance of rounds. Monitored in plant equipment and identify malfunctions of equipment, instruments or controls and report the condition to the control room. Implemented operational procedures as directed during normal and during startups and shutdowns. Coordinated activities with the control room or other equipment operators using the radio or telephone systems to operate plant auxiliary equipment. Performed surveillance testing as directed by the control room. Removed equipment from service and applied system and equipment safety blocking permits under the clearance and tagging process. Returned equipment to service after completion of maintenance. Acted and a member of the plant fire brigade and medical safety team.

4/1977 - United States Coast Guard  
5/1981 Machinery Technician

Served on the cutter POINT ROBERTS, Mayport, Florida and at Training Center Cape May, New Jersey. Attained the rank of Machinery Technician First Class MK1 (E-6). Duties on the cutter POINT ROBERTS were maintaining the diesel engines and generators, performing Engineer of the Watch duties in the engine room and standing bridge watches performing helm and navigation duties. Assigned responsibilities included #1 rescue swimmer and starboard machine gunner. Qualified as a Boarding Officer and participated in the arrest and seizure

of over 200 tons of illegal drugs. Served as armed escort to the President of the United States.

Duties at Training Center Cape May were operating the base steam heating plant, qualifying to the same standard as a New Jersey State Certified Boiler Operator. Maintenance of boiler plant included boiler cleaning and refractory repair, rebuild of plant valves, replacement of system piping and operation of the demineralized water system.

Later responsibilities were managing the base motor pool of over 40 vehicles including cranes, construction equipment, bucket trucks and fire equipment. Maintained the base deep well fresh water pumps, backup emergency generators, and coordination of all base fuel, oil and water deliveries. Qualified as operator for a 25 ton crane, backhoe and loader, fork lift, and other various equipment. Additional duties were operation of fire equipment to provide backup to the base fire department for structural and aircraft crash fire and rescue and provided mutual aid to the towns of Cape May, Wildwood and Wildwood Crest during major fires.

Extensive experience with diesel engine maintenance, auxiliary boiler operation and aircraft and structural fire fighting.

6/1972 –  
7/1976

Central Sports Cars, Holmes, Pa.  
Technician

Responsibilities included managing a two-three person automobile rebuilding shop. Duties were rebuilding body, electrical and mechanical component of wrecked English automobiles, including welding and painting. Coordinated deliveries of automobile parts to other repair facilities in the area. Maintained racing car for SCCA E-Production sports car racing.

#### Education

1972

Penncrest High School, Media, Pa.

Graduated

# ***Appendix AB***

## **Equipment List**

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See Appendix B. No changes were made to the Unit 2 and Unit 0 Equipment Lists (SWEL's) for this Annex A.



# Appendix AC

## Seismic Walkdown Checklist (SWC's)

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Table AC-1 provides a description of each item (1 item), anchorage verification confirmation, a list of Area Walk-By Checklists associated with each item and comments of each Seismic Walkdown Checklist. All items in Table AC-1 were deferred items listed in Table E-1 of this report, and were accessible during the follow-on walkdowns.

Table AC-2 provides a description of each item (3 items) subject to supplemental internal inspections. All items in Table AC-2 of this report were listed in Table E-2 and E-3, and were accessible without safety and operational hazard.

The "Anchorage Configuration Confirmation" column is described in Section 5.2.1 of this report. The last column in Tables AC-1 and AC-2 provides the corresponding Area Walk-By Checklist (AWC). There are a total of 1 AWC included in Appendix AD of this Annex A.

**Table AC-1. Summary of Seismic Walkdown Checklists**

Component ID	Description	Anchor Configuration Confirmed?	AWC-Ux-YY
E13A4 (00B094)	480V Bus E13A4	N	U0-14

**Table AC-2. Summary of Supplemental Internal Inspections**

Component ID	Description	Anchor Configuration Confirmed?	AWC-Ux-YY
2AD003	Battery Charger 2A	Y	U2-23
2DD003	Battery Charger 2D	Y	U2-13
0AC097	Diesel Generator 0AG12 Control Panel	Y	U0-02

Status: Y  N  U

**Seismic Walkdown Checklist (SWC)**

Equipment ID No. 00B094 Equip. Class<sup>1</sup> (02) Low Voltage Switchgears

Equipment Description 480V Bus E13A4

Location: Bldg. ECT-3 Floor El. 153'-0" Room, Area Switch Gear Rooms

Manufacturer, Model, Etc. (optional but recommended) 1005 ITE Circuit Breaker LTD. 33-44640

**Instructions for Completing Checklist**

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

**Anchorage**

- 1. Is the anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)? Y  N
  
- 2. Is the anchorage free of bent, broken, missing or loose hardware? Y  N  U  N/A
  
- 3. Is the anchorage free of corrosion that is more than mild surface oxidation? Y  N  U  N/A
  
- 4. Is the anchorage free of visible cracks in the concrete near the anchors? Y  N  U  N/A
  
- 5. Is the anchorage configuration consistent with plant documentation? Y  N  U  N/A   
(Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)
  
- 6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions? Y  N  U

<sup>1</sup> Enter the equipment class name from ~~Error! Reference source not found. Error! Reference source not found.~~

*Appendix B: Class of Equipment.  
BAF 12/19/2013*

Status: Y  N  U

**Seismic Walkdown Checklist (SWC)**

Equipment ID No. 00B094 Equip. Class: (02) Low Voltage Switchgears

Equipment Description 480V Bus E13A4

**Interaction Effects**

7. Are soft targets free from impact by nearby equipment or structures? Y  N  U  N/A

*No soft targets*

8. Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment? Y  N  U  N/A

*KFC 6/28/13 Damage due to falling lights not plausible  
Masonry block walls - safety related per PARTS SPEC M-701 Rev 1 and DWG-S-532 Rev 13  
(Wall #s 532-1, 532-2, 532-3)  
Breaker hoist adequately secured*

9. Do attached lines have adequate flexibility to avoid damage? Y  N  U  N/A

*No overhead attached lines*

10. Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects? Y  N  U

**Other Adverse Conditions**

11. Have you looked for and found no other seismic conditions that could adversely affect the safety functions of the equipment? Y  N  U

**Comments** (Additional pages may be added as necessary)

Evaluated by: *Ben Fry* Date: 6/25/2013

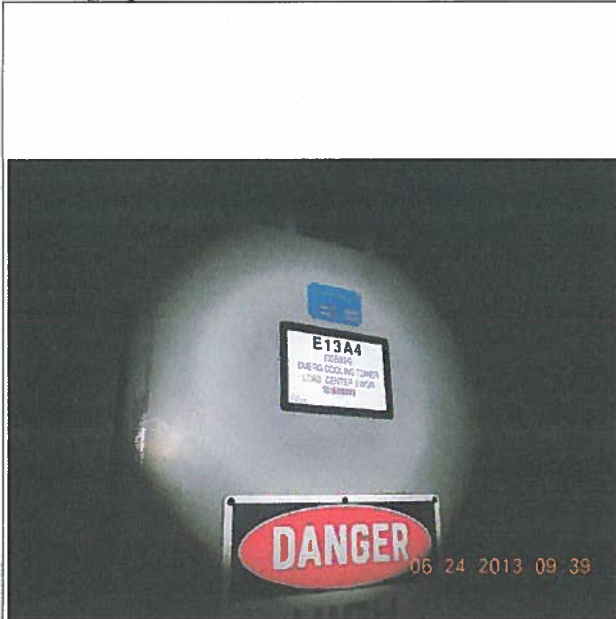
*K. Glat* 6/25/2013

**Seismic Walkdown Checklist (SWC)**

Equipment ID No. 00B094 Equip. Class<sup>1</sup> (02) Low Voltage Switchgears

Equipment Description 480V Bus E13A4

**Photographs**



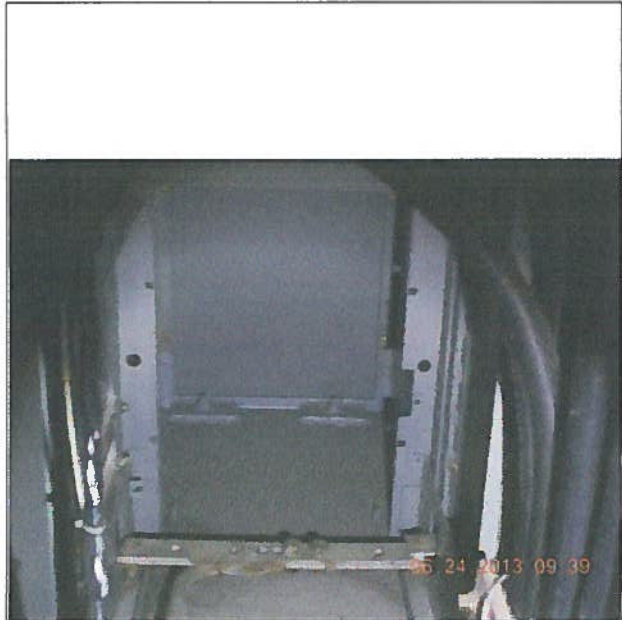
Note:



Note:



Note:



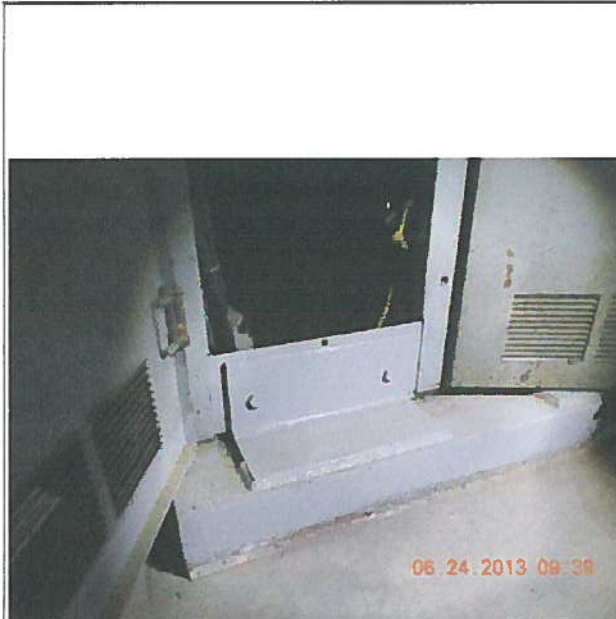
Note: East Bay

**Seismic Walkdown Checklist (SWC)**

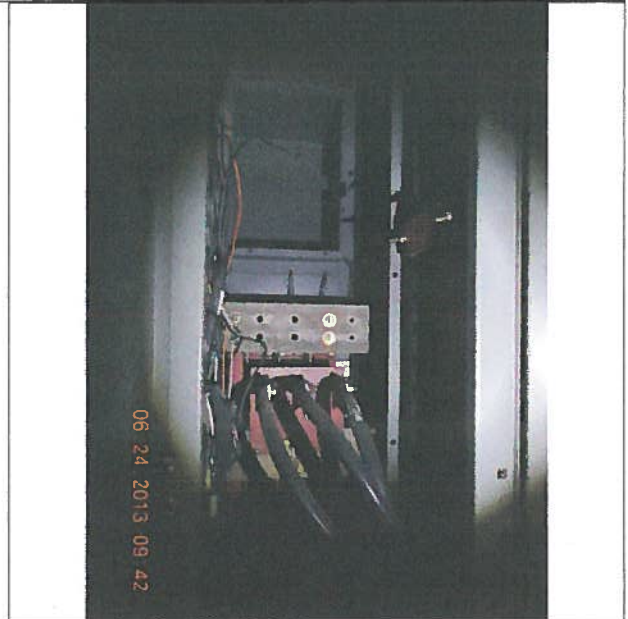
Equipment ID No. 00B094 Equip. Class (02) Low Voltage Switchgears

Equipment Description 480V Bus E13A4

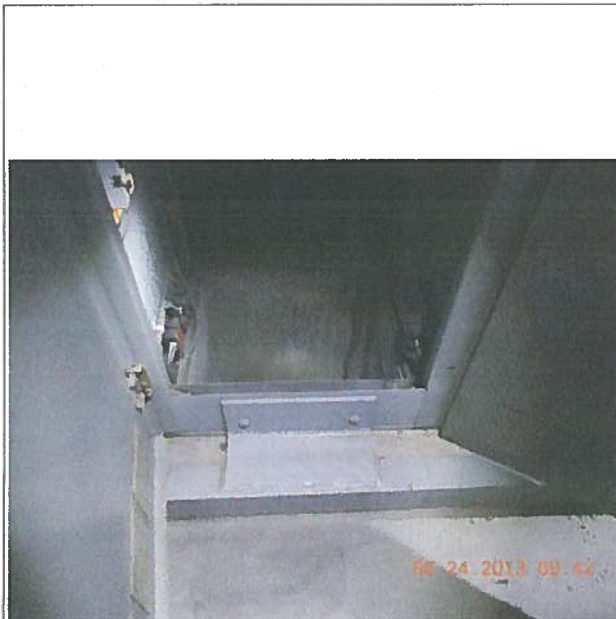
**Photographs**



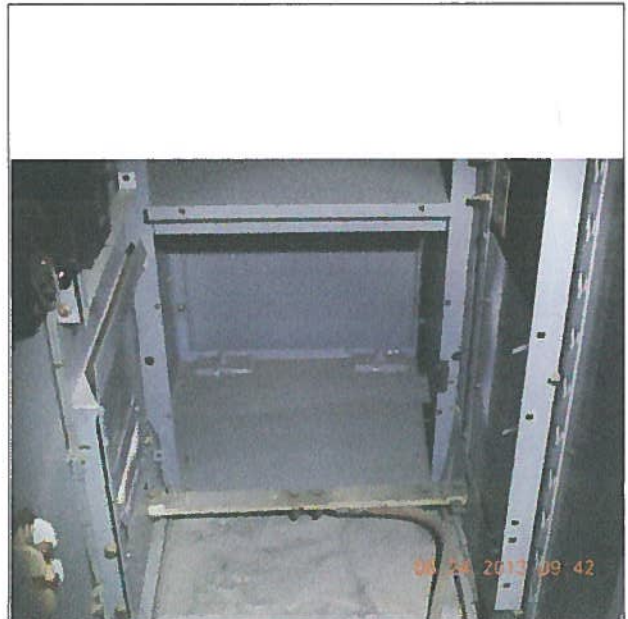
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Note: East Bay



Note: Center Bay



Note: Center Bay

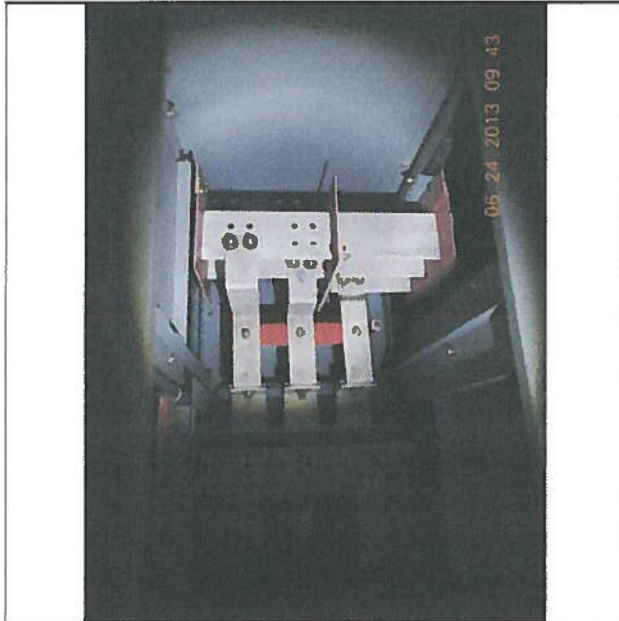


**Seismic Walkdown Checklist (SWC)**

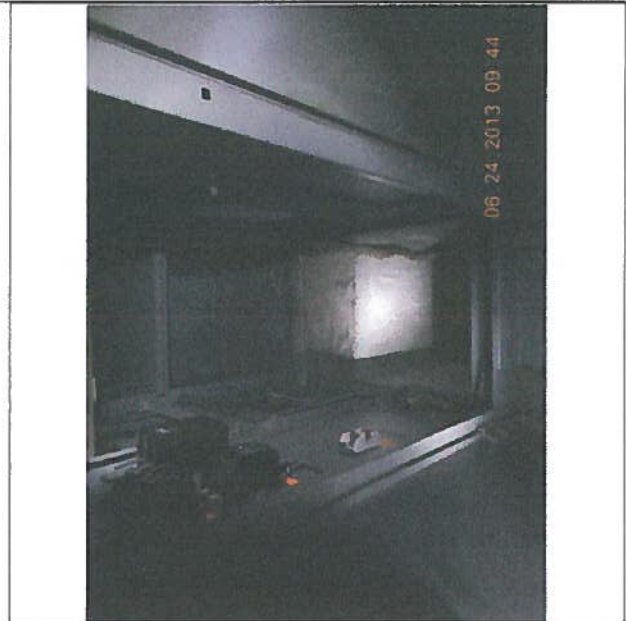
Equipment ID No. 00B094 Equip. Class (02) Low Voltage Switchgears

Equipment Description 480V Bus E13A4

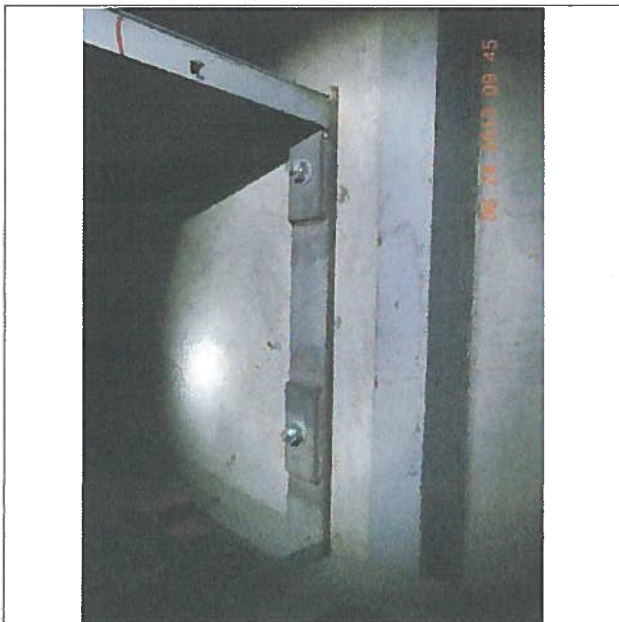
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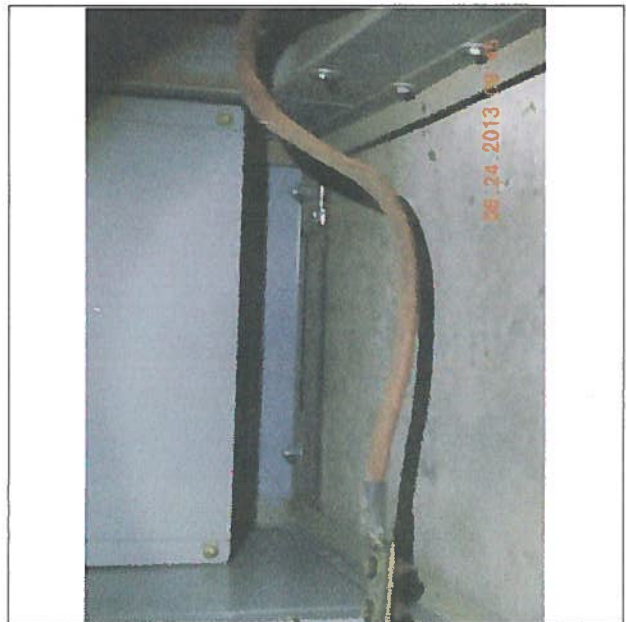
Note: Center Bay



Note: Center Bay



Note: West Bay



Note: West Bay

Status:  Y  N  U

**Seismic Walkdown Checklist (SWC) SUPPLEMENTAL CABINET INSPECTION**

Equipment ID No.: 2AD003 (SEE APPENDIX C PAGE C-136)

Equipment Class: (16) Battery Chargers and Inverters

Equipment Description: BATTERY CHARGER

Project: Peach Bottom Unit 2 SWEL

Location (Bldg, Elev, Room/Area): TB El. 135' (T2-170)

Manufacturer/Model: Thomas & Betts Power Solutions

**Instructions for Completing Checklist**

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

**Anchorage**

1. ~~Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?~~
2. Is the anchorage free of bent, broken, missing or loose hardware? -
3. Is the anchorage free of corrosion that is more than mild surface oxidation? -
4. Is the anchorage free of visible cracks in the concrete near the anchors? -
5. Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.) -
6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions? -

**SEE SWC IN APPENDIX C FOR RESPONSES**

**Interaction Effects**

7. Are soft targets free from impact by nearby equipment or structures? -
8. Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment? -
9. Do attached lines have adequate flexibility to avoid damage? -
10. Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects? -

**SEE SWC IN APPENDIX C FOR RESPONSES**

Status:  Y  N  U

**Seismic Walkdown Checklist (SWC) SUPPLEMENTAL CABINET INSPECTION**

Equipment ID No.: 2AD003 (SEE APPENDIX C PAGE C-136)

Equipment Class: (16) Battery Chargers and Inverters

Equipment Description: BATTERY CHARGER

**Other Adverse Conditions (SUPPLEMENTAL CABINET INSPECTION)**

11. Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?

- a. *Internal components secured? (i.e. no loose or missing fasteners)*
- b. *Are adjacent cabinets secured together?*
- c. *No other adverse seismic conditions?*

Y  N  U  
 Y  N  U *N/A*  
 Y  N  U

**Comments**

Seismic Walkdown Team T. Gallagher & J. Lucas on 07/16/14.  
 FIN team personnel opened the front of the panel to allow for the visual inspection of the internal anchorage.  
 No missing bolts or degraded conditions were found. Photos were taken to document the adequate  
 Configuration of the internal components.

Evaluated by:

T. Gallagher

Date: 07/16/14

J. Lucas

07/16/14

**Photos**

See sheets 3 -4.



**Seismic Walkdown Checklist (SWC)**

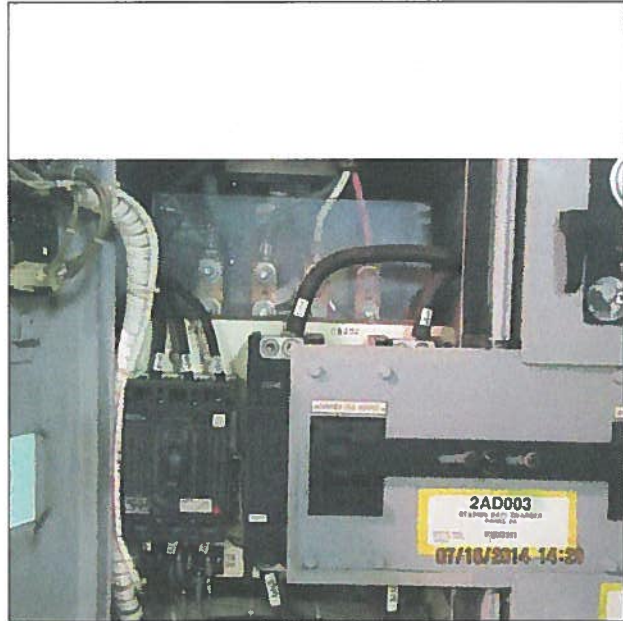
Equipment ID No. 2AD003 Equip. Class<sup>1</sup> (16) Battery Chargers and Inverters

Equipment Description Battery Charger

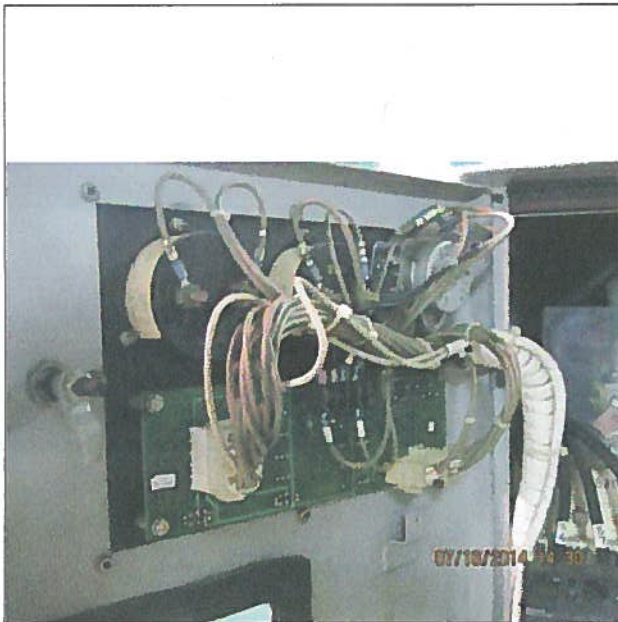
**Photographs**



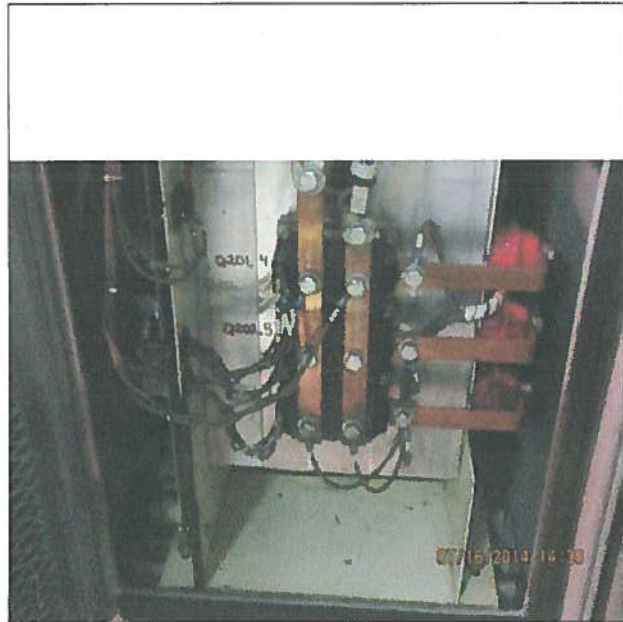
Note:



Note:



Note:

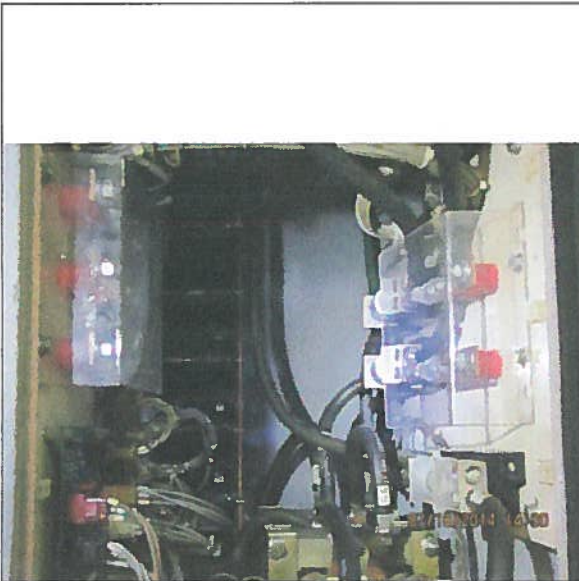


Note:

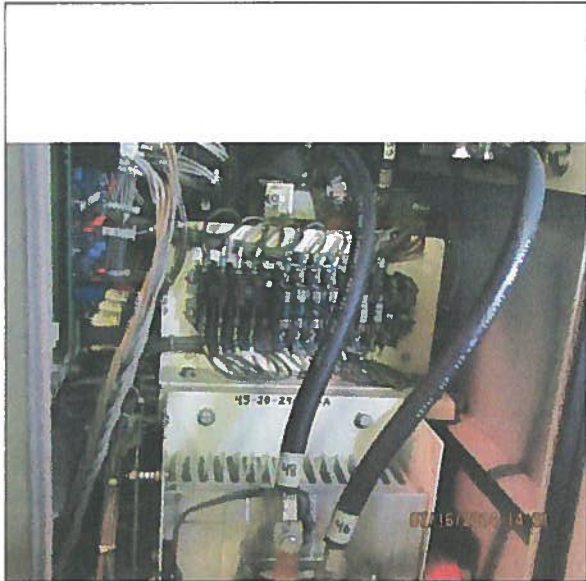
**Seismic Walkdown Checklist (SWC)**

Equipment ID No. 2AD003 Equip. Class<sup>2</sup> (16) Battery Chargers and Inverters

Equipment Description Battery Charger



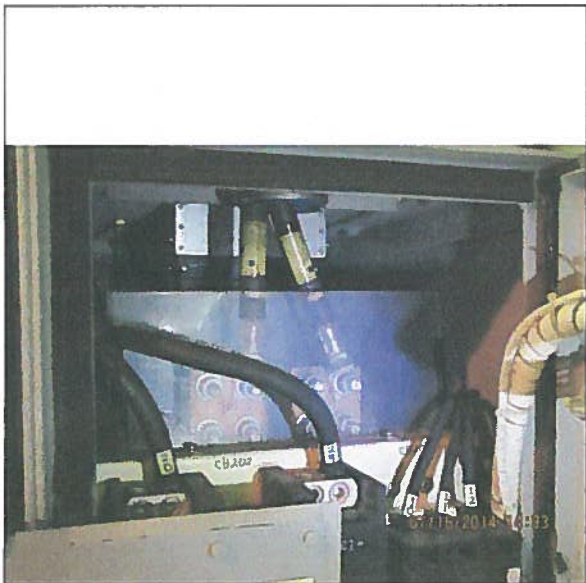
**Note:**



**Note:**



**Note:**



**Note:**

Status:  Y  N  U

**Seismic Walkdown Checklist (SWC) SUPPLEMENTAL CABINET INSPECTION**

Equipment ID No.: 2DD003 (SEE APPENDIX C PAGE C-183)

Equipment Class: (16) Battery Chargers and Inverters

Equipment Description: BATTERY CHARGER

Project: Peach Bottom Unit 2 SWEL

Location (Bldg, Elev, Room/Area): TB El. 135' (T2-172)

Manufacturer/Model: Thomas & Betts Power Solutions

**Instructions for Completing Checklist**

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

**Anchorage**

1. ~~Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?~~
2. Is the anchorage free of bent, broken, missing or loose hardware? -
3. Is the anchorage free of corrosion that is more than mild surface oxidation? -
4. Is the anchorage free of visible cracks in the concrete near the anchors? -
5. Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.) -
6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions? -

**SEE SWC IN APPENDIX C FOR RESPONSES**

**Interaction Effects**

7. Are soft targets free from impact by nearby equipment or structures? -
8. Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment? -
9. Do attached lines have adequate flexibility to avoid damage? -
10. Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects? -

**SEE SWC IN APPENDIX C FOR RESPONSES**

Status:  Y  N  U

**Seismic Walkdown Checklist (SWC) SUPPLEMENTAL CABINET INSPECTION**

Equipment ID No.: 2DD003 (SEE APPENDIX C PAGE C-183)

Equipment Class: (16) Battery Chargers and Inverters

Equipment Description: BATTERY CHARGER

**Other Adverse Conditions (SUPPLEMENTAL CABINET INSPECTION)**

11. Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?

- a. Internal components secured? (i.e. no loose or missing fasteners)
- b. Are adjacent cabinets secured together?
- c. No other adverse seismic conditions?

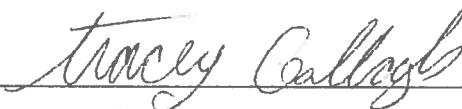
Y  N  U  
 ~~Y  N  U~~ N/A  
 Y  N  U

**Comments**

Seismic Walkdown Team T. Gallagher & J. Lucas on 07/16/14.  
 FIN team personnel opened the front of the panel to allow for the visual inspection of the internal anchorage.  
 No missing bolts or degraded conditions were found. Photos were taken to document the adequate  
 Configuration of the internal components.


Evaluated by:

T. Gallagher



Date: 07/16/14

J. Lucas



07/16/14

**Photos**

See sheets 3 - 4.

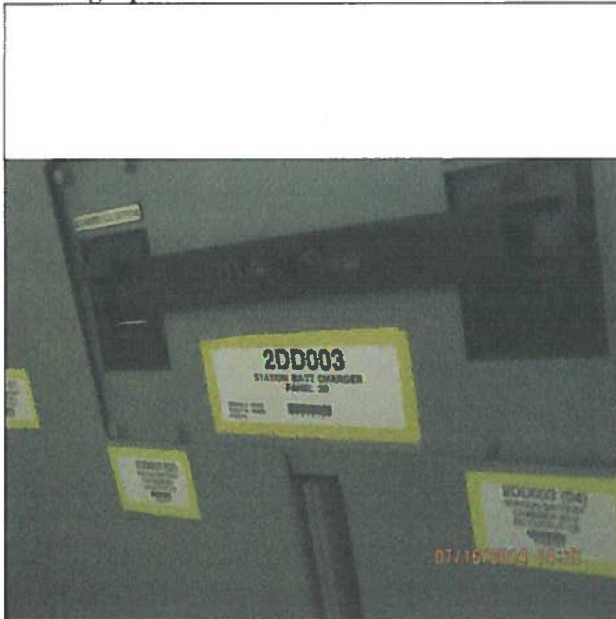


**Seismic Walkdown Checklist (SWC)**

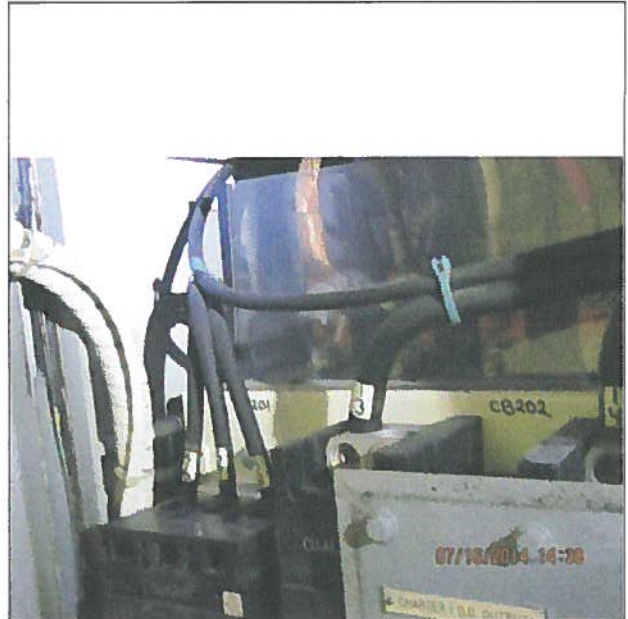
Equipment ID No. 2DD003 Equip. Class<sup>1</sup> (16) Battery Chargers and Inverters

Equipment Description Battery Charger

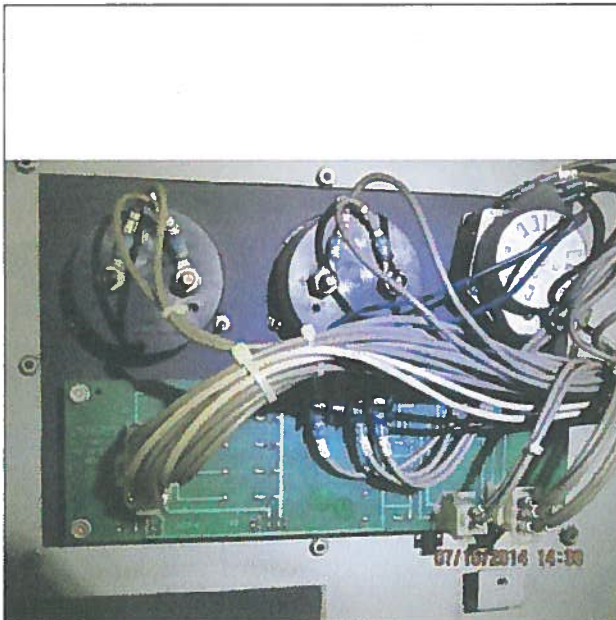
**Photographs**



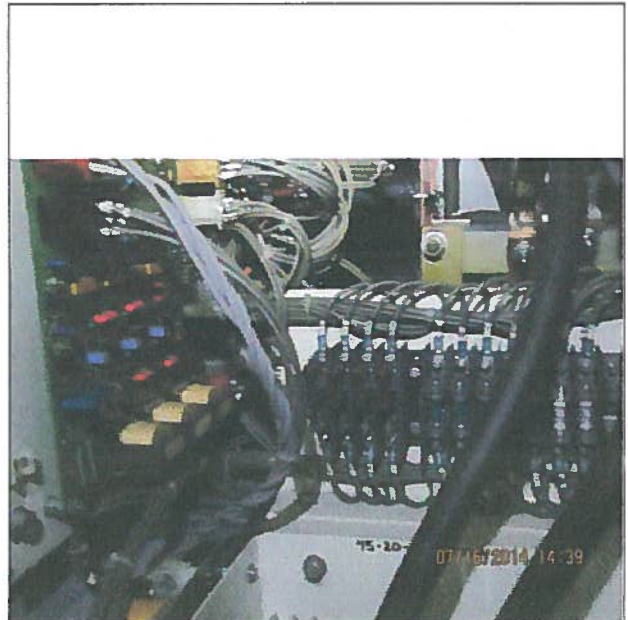
Note:



Note:



Note:



Note:

Status: Y  N  U

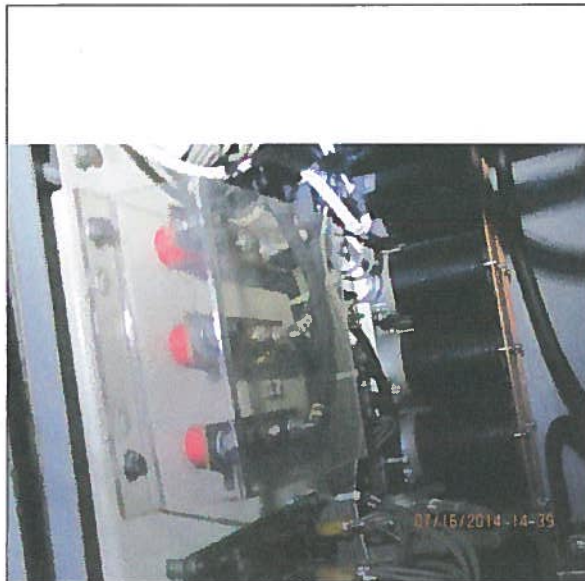
**Seismic Walkdown Checklist (SWC)**

Equipment ID No. 2DD003 Equip. Class<sup>2</sup> (16) Battery Chargers and Inverters

Equipment Description Battery Charger

---

**Photographs**



**Note:**



**Note:**

Status:  Y  N  U

**Seismic Walkdown Checklist (SWC) SUPPLEMENTAL CABINET INSPECTION**

Equipment ID No.: 0AC097 (SEE APPENDIX C PAGES C-347 (Unit 2) and C-310 (Unit 3))

Equipment Class: (20) Control Panels & Cabinets

Equipment Description: STBY. DIESEL GEN. 0AG12 CONTROL PANEL

Project: Peach Bottom Unit 2 & 3 SWEL

Location (Bldg, Elev, Room/Area): Diesel Generator Bldg, 127'-0", D/G-3 (Bay E-1)

Manufacturer/Model: Fairbanks Morse Engine/Colt

**Instructions for Completing Checklist**

This checklist may be used to document the results of the Seismic Walkdown of an item of equipment on the SWEL. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

**Anchorage**

- 1. Is anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)? -
- 2. Is the anchorage free of bent, broken, missing or loose hardware? -
- 3. Is the anchorage free of corrosion that is more than mild surface oxidation? -
- 4. Is the anchorage free of visible cracks in the concrete near the anchors? -
- 5. Is the anchorage configuration consistent with plant documentation? (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.) -
- 6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions? -

**SEE SWC IN APPENDIX C FOR RESPONSES**

**Interaction Effects**

- 7. Are soft targets free from impact by nearby equipment or structures? -
- 8. Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment? -
- 9. Do attached lines have adequate flexibility to avoid damage? -
- 10. Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects? -

**SEE SWC IN APPENDIX C FOR RESPONSES**

Status:  Y  N  U

**Seismic Walkdown Checklist (SWC) SUPPLEMENTAL CABINET INSPECTION**

Equipment ID No.: 0AC097 (SEE APPENDIX C PAGES C-347 (Unit 2) and C-310 (Unit 3))

Equipment Class: (20) Control Panels & Cabinets

Equipment Description: STBY. DIESEL GEN. 0AG12 CONTROL PANEL

**Other Adverse Conditions (SUPPLEMENTAL CABINET INSPECTION)**

11. Have you looked for and found no adverse seismic conditions that could adversely affect the safety functions of the equipment?

- a. *Internal components secured? (i.e. no loose or missing fasteners)*
- b. *Are adjacent cabinets secured together?*
- c. *No other adverse seismic conditions?*

Y  N  U  
 Y  N  U  
 Y  N  U

**Comments**

Seismic Walkdown Team T. Gallagher and J. Lucas 09/16/13.

Operations opened the back panel to allow for the visual inspection of the internal anchorage. No degraded or missing anchorages were found. Photos were taken to document the secure configuration of the internal components. Equipment has external anchorage.

Evaluated by:

T. Gallagher



Date: 09/16/13

J. Lucas



09/16/13

**Photos**

See Sheet 3.

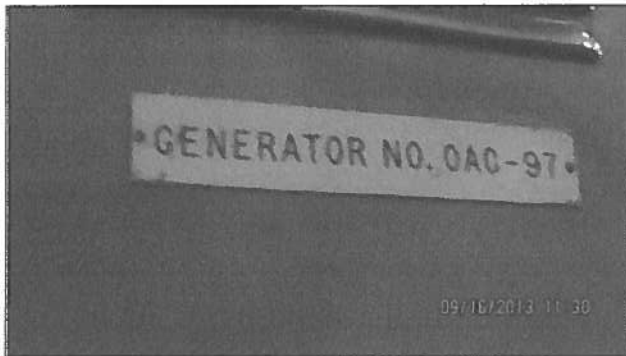


**Seismic Walkdown Checklist (SWC) SUPPLEMENTAL CABINET INSPECTION**

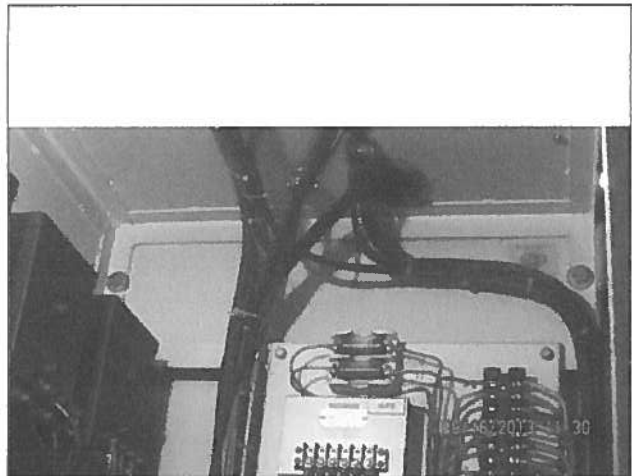
Equipment ID No.: 0AC097 (SEE APPENDIX C PAGES C-347 (Unit 2) and C-310 (Unit 3))

Equipment Class: (20) Control Panels & Cabinets

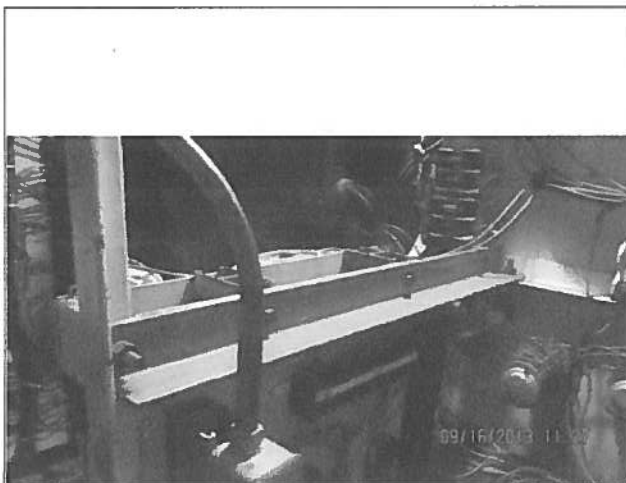
Equipment Description: STBY. DIESEL GEN. 0AG12 CONTROL PANEL



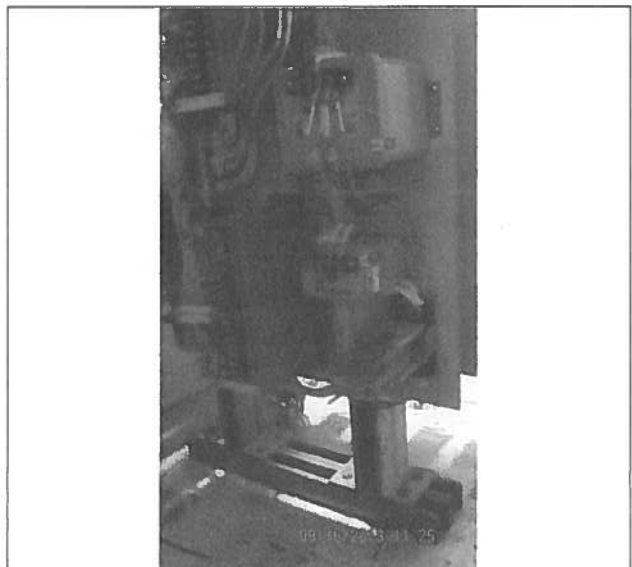
*Note: Diesel Generator Control Panel 0AC097*



*Note: Mounting to adjacent cabinet*



*Note: Internal mounting*



*Note: Internal mounting*

# Appendix AD

## Area Walk-By Checklist (AWC's)

---

Table AD-1 and AD-2 provides the location of each walk-by area that was previously inaccessible and deferred, as well as a list of walkdown items associated with each area.

**Table AD-1.** Unit 2 Area Walk-By Checklists (AWCs)

No new AWC's for the Unit 2 follow-on walkdowns.

**Table AD-2.** Unit 0 Area Walk-By Checklists (AWCs)

AWC-Ux-YY	Building	Elevation	Location	Component ID
U0-14	Emerg. Cooling Tower	153	ECT-3	E13A4 (00B094)

**Area Walk-By Checklist (AWC)**

Location: Bldg. ECT Floor El. 153 Room, Area<sup>13</sup> Room of 006094 (E13A4) <sup>K0 6/28/13</sup>

**Instructions for Completing Checklist**

This checklist may be used to document the results of the Area Walk-By near one or more SWEL items. The space below each of the following questions may be used to record the results of judgments and findings. Additional space is provided at the end of this checklist for documenting other comments.

1. Does anchorage of equipment in the area appear to be free of potentially adverse seismic conditions (if visible without necessarily opening cabinets)?  Y  N  U  N/A
  
2. Does anchorage of equipment in the area appear to be free of significant degraded conditions?  Y  N  U  N/A
  
3. Based on a visual inspection from the floor, do the cable/conduit raceways and HVAC ducting appear to be free of potentially adverse seismic conditions (e.g., condition of supports is adequate and fill conditions of cable trays appear to be inside acceptable limits)?  Y  N  U  N/A
  
4. Does it appear that the area is free of potentially adverse seismic spatial interactions with other equipment in the area (e.g., ceiling tiles and lighting)?  Y  N  U  N/A

<sup>13</sup> If the room in which the SWEL item is located is very large (e.g., Turbine Hall), the area selected should be described. This selected area should be based on judgment, e.g., on the order of about 35 feet from the SWEL item.

**Area Walk-By Checklist (AWC)**

Location: Bldg. ECT Floor El. 153 Room, Area<sup>13</sup> Room of 00B094 (E13A4) KG 6/2P113

5. Does it appear that the area is free of potentially adverse seismic interactions that could cause flooding or spray in the area?  Y  N  U  N/A

6. Does it appear that the area is free of potentially adverse seismic interactions that could cause a fire in the area?  Y  N  U  N/A

7. Does it appear that the area is free of potentially adverse seismic interactions associated with housekeeping practices, storage of portable equipment, and temporary installations (e.g., scaffolding, lead shielding)?  Y  N  U  N/A

*Freon bottles adequately secured to wall  
Brecher hoist adequately secured to wall*

8. Have you looked for and found no other seismic conditions that could adversely affect the safety functions of the equipment in the area?  Y  N  U

**Comments** (Additional pages may be added as necessary)

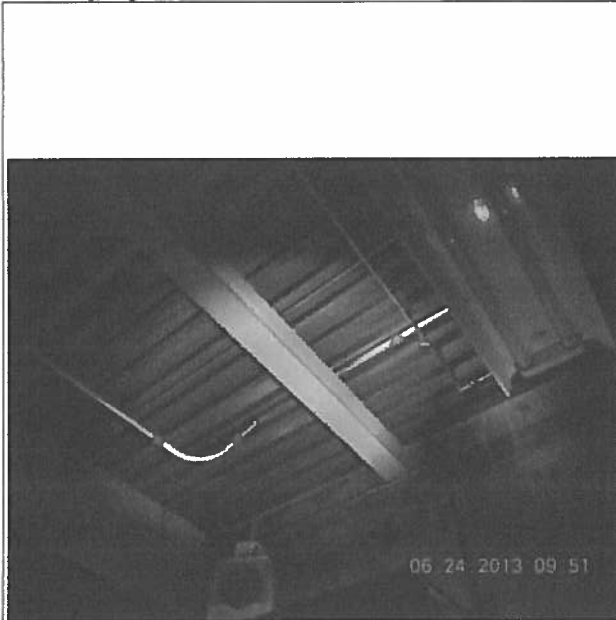
Evaluated by: *Ben Joz* Date: 6/25/2013

*X JH* 6/25/2013

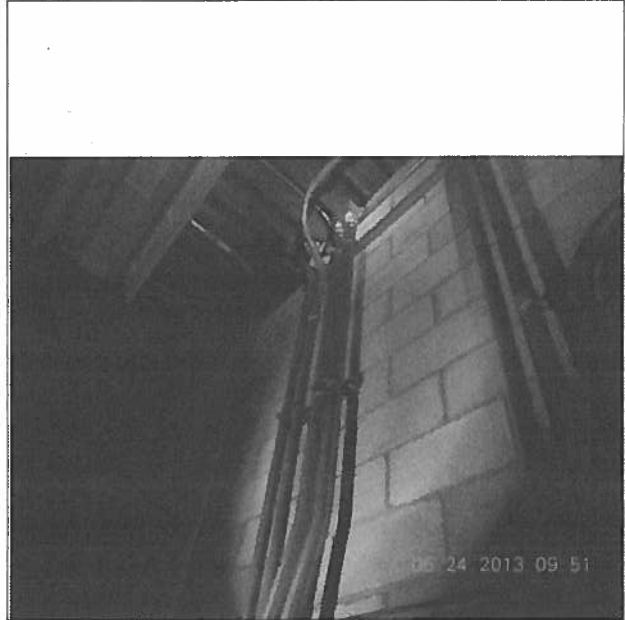
**Area Walk-By Checklist (AWC)**

Location: Bldg. ECT-3 Floor El. 153'-0" Room, Area<sup>1</sup> Switchgear Room

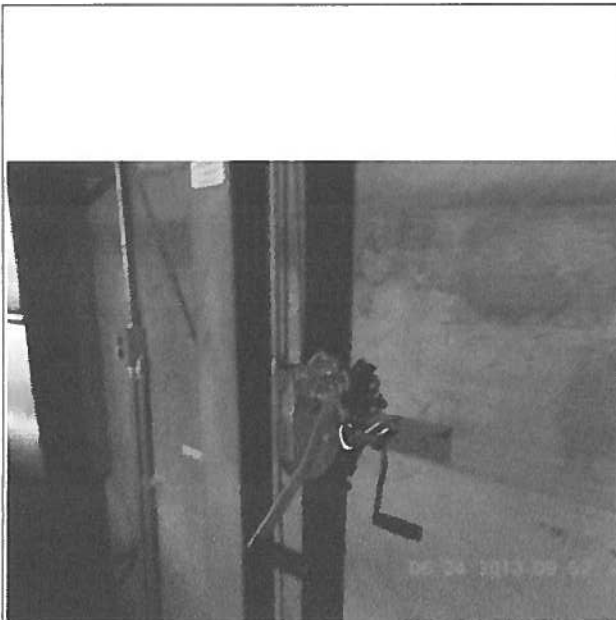
**Photographs**



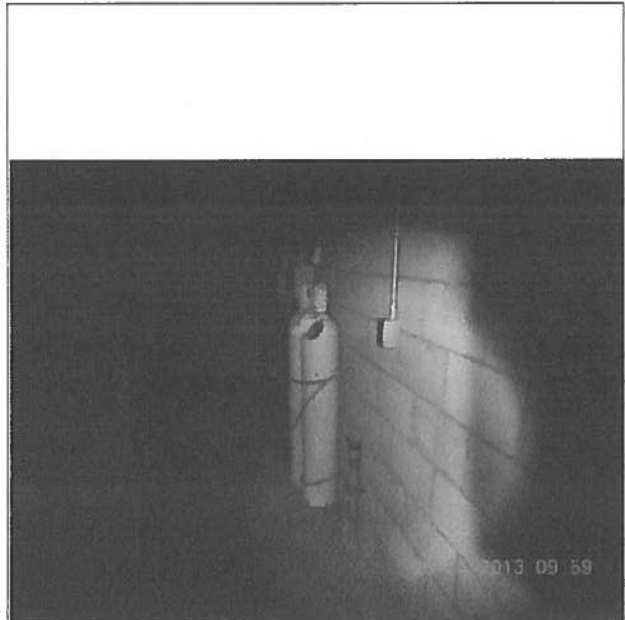
**Note:**



**Note:**



**Note:** *Breaker Hoist*

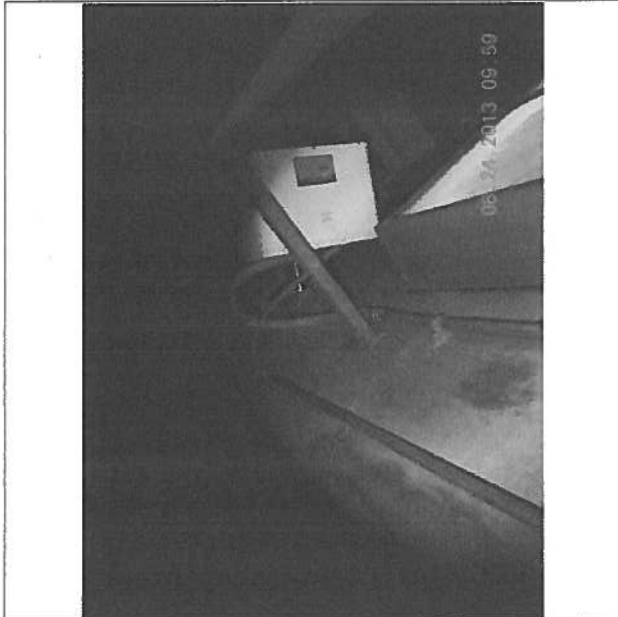


**Note:**

**Area Walk-By Checklist (AWC)**

Location: Bldg. ECT-3 Floor El. 153'-0" Room, Area Switchgear Room

**Photographs**



**Note:**

# ***Appendix AE***

## **Plan for Walkdown of Inaccessible Equipment and Assessment of Electrical Cabinet Internal Inspections**

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No additional follow-on walkdowns resulting from this Annex A.

# ***Appendix AF***

## **Peer Review Report**

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This appendix includes the Peer Review Team's report on the follow-on Seismic Walkdowns and Walk-Bys.



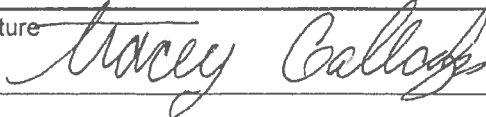
**Peer Review Report**  
**for**  
**Near Term Task Force (NTTF) Recommendation 2.3**  
**Seismic Walkdown of Peach Bottom Unit 2**

---

**Peer Reviewers:**

Tracey Gallagher (Team Leader)

Paul Kester

Tracey Gallagher	
Peer Review Team Leader Signature 	Date 10/02/2014

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# AF.1

## Introduction

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### AF.1.1 OVERVIEW

This report documents the independent peer review for the Near Term Task Force (NTTF) Recommendation 2.3 Seismic Walkdowns performed by Exelon Engineering Department for Unit 2 of Peach Bottom Atomic Power Station (PBAPS). The peer review addresses the following activities:

- Review the selection of the structures, systems, and components (SSCs) included in the follow-on walkdowns,
- Review the checklists of the items completed during the follow-on Seismic Walkdowns & Area Walk-Bys,
- Review of any licensing basis evaluations,
- Review of the decisions for entering the potentially adverse conditions identified during the follow-on walkdowns into the plant's Corrective Action Program (CAP), and
- Review of the final submittal report.
- Summarize the results of the peer review process in the final submittal report.

### AF.1.2 PEER REVIEWERS

The Peer Reviewers are Tracey Gallagher and Paul Kester. Ms. Gallagher is the Peer Review Team Leader, per the EPRI Seismic Walkdown Guidance (Reference 1). As Peer Review Team Leader, she was responsible for the entire peer review process, including completion of the final peer review documentation in this report. The Peer Reviewers' qualifications are briefly summarized as follows:

- Ms. Gallagher is a degreed civil/structural engineer and has over 7 years of nuclear power experience. She has been trained as an EPRI Seismic Walkdown Engineer and is SQUG qualified.
- Mr. Kester is a degreed mechanical engineer with a master's degree in civil engineering and has over 20 years of nuclear power experience at Peach Bottom. Mr. Kester and has been trained as a Seismic Capability Engineer (EPRI SQUG training) for the use of the SQUG Generic Implementation Procedure (GIP) for new and replacement components and equipment.

### **AF.1.3 SWEL DEVELOPMENT**

No changes were made to the SWEL for the follow-on walkdown activities.

### **AF.1.4 SEISMIC WALKDOWN**

The peer review of the seismic walkdowns was performed by Ms. Gallagher and Mr. Kester on October 02, 2014. The review included the SWCs for the (2) Unit 2 supplemental internal cabinet inspections completed, including checklists, photos, and drawings where applicable. There were no new AWCs for this Annex A. All common unit SWCs and AWCs were peer reviewed in the Unit 3 updated submittal report (Ref. 14). Interviews were conducted with SWEs to assess conduct of the walkdowns and adherence to the EPRI Seismic Walkdown Guidance (Reference 1).

No issues (IR's) were identified which challenged the current licensing basis.

# **AF.2**

## **Peer Review - Selection of SSCs**

---

### **AF.2.1 PURPOSE**

The purpose of this section is to describe the process to perform the peer review of the selected structures, systems, and components, (SSCs) that were included in the Seismic Walkdown Equipment List (SWEL).

However, this peer review is performed for the SSC's that were previously inaccessible and were completed during the follow-on Seismic Walkdowns and Area Walk-Bys. There are no changes to the SWEL, so the selection of new SSCs does not apply in this case.

This peer review is based on an interview with the seismic walkdown engineers (SWE) subsequent to performance of those activities.

# AF.3 Review of Follow-on Seismic Walkdown & Area Walk-By Checklists

---

## AF.3.1 OVERVIEW

The peer review of the remaining follow-on walkdowns for Annex A was performed on October 02, 2014 by Ms. Gallagher and Mr. Kester. The Peer Review Team reviewed Seismic Walkdown Checklists (SWC) that were performed for Peach Bottom Unit 2 and interviewed the walkdown team members regarding details in checklists.

## AF.3.2 FOLLOW-ON SEISMIC WALKDOWN CHECKLISTS

Peach Bottom Unit 2 equipment inspected during the follow-on walkdowns is included in the peer review; see the follow-on Seismic Walkdown and Area Walk-By Checklists presented below:

**Table AF.3-1.** Follow-on Seismic Walkdown Checklists

Equipment ID (Applicable Area Walkby)	Description	Equipment Class	Location	Observations
2AD003 (AWC U2-23)	Battery Charger 2A	(16) Battery Chargers and Inverters	Turbine Bldg T2-170 El. 135'	No issues with the SWC or AWC applicable to this equipment or its conclusions were identified.
2DD003 (AWC U2-13)	Battery Charger 2D	(16) Battery Chargers and Inverters	Turbine Bldg T2-172 El. 135'	No issues with the SWC or AWC applicable to this equipment or its conclusions were identified.

**Table AF.3-2. Follow-on Area Walk-By Checklists**

No additional AWCs were performed for the follow-on walkdown activities.

**AF.3.3 EVALUATION OF FINDINGS**

There were no issues that challenged the licensing bases. The outcome of the walkdowns indicated that there were no major concerns from the inspections conducted, and the peer reviewers considered the engineering judgments made by the inspectors as appropriate and acceptable, per the EPRI Seismic Walkdown Guidance.

# ***AF.4*** Review of Licensing Basis Evaluations

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There were no issues that challenged the licensing basis for the follow-on items, therefore no assessments were required. The peer reviewers concur with this outcome.



# **AF.5** References

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1. EPRI Technical Report 1025286, Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic, dated June 2012.