



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I**  
2100 RENAISSANCE BOULEVARD, SUITE 100  
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

March 12, 2013

Mr. Michael J. Pacilio  
Senior Vice President, Exelon Generation Company, LLC  
President and Chief Nuclear Officer, Exelon Nuclear  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION - NRC LICENSE RENEWAL  
TEAM INSPECTION REPORT 05000277/2013007

Dear Mr. Pacilio:

On January 31, 2013, the U. S. Nuclear Regulatory Commission (NRC) completed a team inspection at your Peach Bottom Atomic Power Station Unit 2. The enclosed inspection report documents the inspection results, which were discussed on January 31, 2013, with Mr. Patrick Navin, Plant Manager, and other members of your staff.

The inspection examined activities conducted by your staff to complete commitments Exelon Generation Company, LLC (Exelon) made to the NRC as a part of your application for a renewed operating license. The commitments reviewed during this inspection are documented in NUREG-1769, "Safety Evaluation Report Related to the License Renewal of Peach Bottom Atomic Power Station, Units 2 and 3," Appendix D, dated February 2003. The inspection also verified your compliance with conditions placed on the renewed operating license that were added as a part of approving your application and reviewed selected programs enhanced for the purpose of managing the effects of aging. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

No findings were identified during this inspection. The NRC determined that the commitments reviewed associated with the license renewal application had been appropriately implemented.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Part 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records

(PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.htm> (the Public Electronic Reading Room).

Sincerely,

*/RA/*

James M. Trapp, Chief  
Engineering Branch 1  
Division of Reactor Safety

Docket No.: 50-277  
License No.: DPR-44

Enclosure: Inspection Report 05000277/2013007  
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

(PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.htm> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

James M. Trapp, Chief  
Engineering Branch 1  
Division of Reactor Safety

Docket Nos.: 50-277,  
License Nos.: DPR-44

Enclosure: Inspection Report 05000277/2013007  
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

Distribution w/encl: (via email)

W. Dean, RA  
D. Lew, DRA  
D. Roberts, DRP  
M. Layton, DRP  
C. Miller, DRS  
J. Clifford, DRS  
M. Gray, DRP  
S. Barber, DRP

J. Ayala, DRP  
A. Turilin, DRP  
S. Hansell, DRP, SRI  
A. Ziedonis, DRP, RI  
S. Schmitt, DRP, AA  
J. Cassidy, RI, OEDO  
RidsNrrPMPeachBottom Resource  
RidsNrrDorLp1-2 Resource  
ROPreports Resource

Document Name: G:\DRS\Engineering Branch 1\-- Modes\20130312-1 Peach Bottom LR Report.doc  
ADAMS Accession No.: ML13071A608

<input checked="" type="checkbox"/> SUNSI Review		<input checked="" type="checkbox"/> <b>Non-Sensitive</b> <input type="checkbox"/> Sensitive		<input checked="" type="checkbox"/> <b>Publicly Available</b> <input type="checkbox"/> Non-Publicly Available	
OFFICE	RI/DRS	RI/DRP	RI/DRS		
NAME	MModes/jmt for	MGray/sb for	JTrapp		
DATE	03/12/2013	03/12/2013	03/12/2013		

OFFICIAL RECORD COPY

**U. S. NUCLEAR REGULATORY COMMISSION**

## REGION I

Docket Nos.: 50-277

License Nos.: DPR-44

Report No.: 05000277/2013007

Licensee: Exelon Generation Company, LLC

Facility: Peach Bottom Atomic Power Station Unit 2

Location: Delta, Pennsylvania

Dates: January 14 – 31, 2013

Inspectors: M. Modes, Team Lead, Senior Reactor Inspector  
G. Meyers, Senior Reactor Inspector  
H. Gray, Senior Reactor Inspector  
J. Lilliendahl, Reactor Inspector  
T. OHara, Reactor Inspector  
S. Chaudhary, Reactor Inspector

Approved by: James M. Trapp, Chief  
Engineering Branch 1  
Division of Reactor Safety

Enclosure

## SUMMARY OF FINDINGS

IR 05000277/2013007; 01/14/2013-01/31/2013; Peach Bottom Atomic Power Station (PBAPS), Unit 2; License Renewal Team Inspection

The report covers an announced two week inspection, using the guidance provided in NRC Inspection Procedure 71003, "Post-Approval Site Inspection for License Renewal" of activities conducted by Exelon Generation Company, LLC to complete commitments made to the NRC as a part of the Peach Bottom Atomic Power Station, Unit 2, application for a renewed operating license. The commitments reviewed during this inspection are documented in NUREG-1769, "Safety Evaluation Report Related to the License Renewal of Peach Bottom Atomic Power Station, Units 2 and 3," Appendix D, dated February 2003. The inspection also verified compliance with certain conditions placed on the renewed operating license that were added as a part of approving the application for a renewed operating license and reviewed enhancements made to selected aging programs.

### **Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

No findings were identified. The NRC determined that the commitments reviewed associated with the license renewal application had been appropriately implemented.

## REPORT DETAILS

### 4. OTHER ACTIVITIES

#### 4OA5 Post-Approval Site Inspection for License Renewal (IP 71003)

##### .1 Sample Selection Process

The reviewed commitments, license conditions, and enhanced aging management programs, were selected based on several attributes including: risk significance using the NRC Risk-Informed Inspection Notebook for Peach Bottom Atomic Power Station Unit 2 and 3, Revision 2.1a, the results of previous license renewal audits and inspections of aging management programs; the complexity in implementing a commitment; and the extent to which the baseline inspection programs will inspect attributes of the commitment, license condition or aging management program. Consideration is given to the amount of time since the renewed license was granted and beginning of the period of extended operation.

The commitments reviewed by this inspection are recorded in NUREG-1769, "Safety Evaluation Report Related to the License Renewal of Peach Bottom Atomic Power Station, Units 2 and 3," Appendix D, dated February 2003. For each commitment the inspectors reviewed supporting documents including completed surveillances, conducted interviews, performed visual inspection of structures and components and observed selected activities described below to verify the licensee completed the necessary actions to comply with the license conditions or commitments.

The inspectors selectively verified the licensee implemented the aging management programs, included in the staff's license renewal safety evaluation report, in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 54, "Requirements for the Renewal of Operating Licenses for Nuclear Power Plants." The inspectors verified a selected sample of licensee corrective actions that were the result of license renewal activities.

During this inspection the inspectors verified that changes, if any, to these commitments were identified and properly reviewed and approved. Because no changes were made prior to the beginning of this inspection, the inspectors reviewed the procedures developed by the licensee to insure that commitment revision followed the guidance in NEI 99-04, "Guidelines for Managing NRC Commitment Changes," for the license renewal commitment change process, including the elimination of commitments, and would properly evaluate, report, and approve where necessary, changes to license renewal commitments listed in the Updated Final Safety Analysis Report in accordance with 10 CFR 50.59. The inspectors also reviewed the licensee's commitment tracking program to evaluate its effectiveness.

On a sampling basis, the inspectors verified that Exelon had completed the necessary actions to comply with the license conditions that are a part of the renewed operating license, and had implemented the aging management programs included in the NRC staff's license renewal safety evaluation report. The following commitments, license conditions, and enhanced programs were reviewed:

.2 Results of Reviews

- .2.1 Commitment 1 - Evaluate any age related degradation found during recirculation system inservice inspections for applicability to the non safety-related portions of the recirculation system that was included in the scope of license renewal for non safety-related/safety-related.

a. Scope of Inspection

The Peach Bottom Atomic Power Station inservice inspection program, as augmented, addresses the requirements of NRC Generic Letter 88-01, "NRC Position on IGSCC in Austenitic Stainless Steel Piping," for the aging management of pressure retaining piping and components within the scope of license renewal. The augmented program is credited with monitoring the aging of the non safety-related components of the reactor recirculation system. The augmented inservice inspection program includes periodic inspections and tests that manage aging effects not managed by other aging management programs. The aging effects managed are loss of material, cracking monitoring, verification of chemistry effectiveness and monitoring for loss of fracture toughness. This program is routinely reviewed, and sample tests are observed, as part of the NRC baseline inspection program inservice inspection procedure (71111.08B). Members of this NRC inspection team had verified this commitment was completed during the review of the inservice testing program during previous outages, while fulfilling the requirements of the inservice testing baseline procedure.

b. Findings and Observations

No findings were identified.

- .2.2 Commitment 2 - Notify the NRC whether Integrated Surveillance Program per Boiling Water Reactor Vessel Internal Program (BWRVIP) 78 or plant specific program will be implemented.

a. Scope of Inspection

In the applicant's response (Exelon letter to the NRC, dated May 6, 2002) to the NRC's Request for Additional Information 3.1-15, Exelon committed to implement the provisions of the Integrated Surveillance Program described in BWRVIP-78 and BWRVIP-86. Exelon stated that if the NRC did not approve the described Integrated Surveillance Program, then Exelon would develop a Peach Bottom Atomic Power Station specific reactor pressure vessel surveillance program for the period of extended operation.

Subsequent to the review and comment by the NRC of BWRVIP-78 and BWRVIP-86, these programs were modified to address NRC concerns and the revised documents were combined into BWRVIP-86-A and submitted to the NRC for approval. The NRC identified that BWRVIP-86-A did not contain all the elements of an aging management as described in the standard review plan for renewal. The Boiling Water Reactor Vessels Internal Project withdrew BWRVIP-86-A and the necessary provisions of an aging management program were included in a newly designated procedure BWRVIP-116. The NRC reviewed and approved BWRVIP-116.

All the acceptable provisions of an Integrated Surveillance Program, embodied in the various submissions, were incorporated into BWRVIP-86, Revision 1, which was

approved by the NRC. The inspectors noted that Exelon had incorporated BWRVIP- 86, Revision 1, guidance into site specific implementing procedures (ER-PB-331-1001 and ER-AB-331-103). The inspectors verified the implementing procedures incorporated BWRVIP-86, Revision 1 elements.

b. Findings and Observations

No findings were identified.

- .2.3 Commitment 3 - Perform inspection of carbon steel component supports (other than American Society of Mechanical Engineers (ASME) Class 1, 2, 3, and ASME Class MC component supports).

Commitment 4 - Perform inspection of station blackout (SBO) structural components.

a. Scope of Inspection

For commitments 3 and 4, the inspectors noted the inspection of carbon steel component supports, other than those controlled by the provisions of the ASME Boiler and Pressure Vessel Code, are performed in accordance with the Maintenance Rule Structural Monitoring Program. The inspection of SBO structural components is also performed at under the provisions of the Maintenance Rule Structural Monitoring Program. The inspectors reviewed the Maintenance Rule Structural Monitoring Program procedure EB-PB-450-1006, and implementing work orders AR A1227299-73/ER-PB-450-1006. The inspectors inspected the SBO structure, and toured the facility to observe the application of the Maintenance Rule Structural Monitoring Program to carbon steel component supports.

b. Findings and Observations

No findings were identified.

- .2.4 Commitment 5 - Perform periodic reviews of calibration test results of electrical cables used in local power range monitors and wide range neutron monitors instrumentation circuits to identify potential existence of aging degradation.

a. Scope of Inspection

The inspectors reviewed the license renewal application, safety evaluation report, the licensee implementation plan, and the associated revised procedures. The inspectors discussed this commitment with applicable plant staff and license renewal personnel. The inspectors verified that the surveillance procedures had been updated to include the new commitment, and the initial tests had been successfully completed.

b. Findings and Observations

No findings were identified.

.2.5 Commitment 6 - Perform inspection of outer sluice gates in the circulating water pump structure.

a. Scope of Inspection

This commitment was reviewed as part of the NRC Inspection Procedure 71003, Phase I, inspection performed during the week of September 20-27, 2012. The results of this inspection are documented in Section 4OA5 of NRC Integrated Inspection Report 05000277&278/2012005.

.2.6 Commitment 7 - Perform inspection of hazard barrier doors in a sheltered environment for loss of material.

a. Scope of Inspection

Peach Bottom Atomic Power Station's door inspection program provides for condition monitoring of watertight doors and their gaskets in outdoor and sheltered environments. The activities are implemented through the following surveillance procedures:

ST-M-037-350-2, "Safety Related Fire Barrier Door Inspection"  
 RT-M-045-900-2, "Unit 2 And Common Door Inspections"  
 RT-M-045-990-2, "Water Tight Diesel Equipment Access Door Survey"  
 RT-M-045-980-2, "Water Tight Door Survey"

The inspectors reviewed the surveillance changes and noted door inspections provide for condition monitoring of hazard barrier doors in an outdoor and in sheltered environments.

The inspectors reviewed recurring task work order R0877480 implementing PM378122, "Door; D31,D25,T01 & T02; Inspect for Corrosion", last updated April 20, 2012, which performed the required inspection. The inspectors noted that Work Orders R1169165, and R1170987 were appropriately rescheduled to perform the inspections prior to the period of extended operation in order to complete this commitment.

b. Findings and Observations

No findings were identified.

.2.7 Commitment 8 - Perform inspection of reactor pressure vessel (RPV) top guide.

a. Scope of Inspection

This commitment was reviewed as part of the NRC Inspection Procedure 71003, Phase I, inspection performed during the week of September 20-27, 2012. The results of this inspection are documented in Section 4OA5 of NRC Integrated Inspection Report 05000277&278/2012005.

- .2.8 Commitment 9 - Perform ultrasonic testing to detect wall thinning at susceptible locations in the emergency service water system stagnant piping in emergency core cooling system rooms.

a. Scope of Inspection

The ultrasonic testing is performed to periodically measure the wall thickness of emergency service water system piping in areas where flow does not regularly occur (stagnant parts of the systems). The inspectors reviewed the licensee implementation plan and results binder, and discussed this commitment with applicable plant staff and license renewal personnel. The licensee had selected three locations in Unit 2 and three locations in Unit 3, and measured wall thicknesses using ultrasonic testing beginning in 2005. The inspectors reviewed a summary of the inspection results and the nine ultrasonic testing inspection reports. The results supported continuation of the ultrasonic testing at the planned five-year frequency.

The inspectors noted that the Final Safety Analysis Report had been updated to include the ultrasonic test inspections; however, the inspectors identified that the description contained editorial errors. The licensee issued corrective action AR 01226799 to correct the error.

b. Findings and Observations

No findings were identified.

- .2.9 Commitment 10 - Perform one-time inspection of a cast iron fire protection component for selective leaching.

a. Scope of Inspection

The objective of the inspection was to assess whether selective leaching exists at Peach Bottom Atomic Power Station. Selective leaching is the chemically facilitated diffusion of carbon atoms from gray cast iron (graphitization). The migration of carbon, from within the gray cast iron matrix, results in a porous and weakened metal structure. The inspectors reviewed the licensee implementation plan and results binder, and discussed this commitment with applicable plant staff and license renewal personnel. The inspectors reviewed the reports of two destructive metallographic evaluations and the corrective action documents related to follow up on the evaluations.

Exelon selected two fire protection system valves, previously removed from service, as vulnerable targets for leaching and performed metallographic evaluations of the valve body materials. The evaluation reports concluded that both valves showed evidence of selective leaching. Under Condition Report 01257959 the licensee evaluated the structural effects of the selective leaching (general depths of .100-inches to .200-inches with a maximum depth of .330-inches) and determined the structural integrity of the valves, with wall thicknesses of approximately an inch, was not compromised. The licensee established ongoing aging management of the selective leaching by means of continued destructive evaluations of fire protection system valves removed from service. Of an original population of approximately 70 valves, half have been replaced. The inspectors reviewed the condition report, Fire System Selective Leaching Plan, draft

corporate selective leaching program procedure, and three work orders associated with the next valves planned for removal from service and replacement.

b. Findings and Observations

No findings were identified

.2.10 Commitment 11 - Perform functional testing of sprinkler heads.

a. Scope of Inspection

The inspectors reviewed the license renewal application, safety evaluation report, the licensee implementation plan, and the associated work request. The inspectors discussed this commitment with applicable plant staff and license renewal personnel. The inspectors noted the open work request A1329928 evaluation 42 had established that the earliest possible required test date for the sprinkler heads would be in 2018. The inspectors discussed the ongoing planning for the required testing with the Fire Protection System Manager and confirmed that the work was being tracked in the work order system and that there was adequate time for implementing the sprinkler testing prior to 2018. The inspectors observed the general condition of a sample of fire protection sprinkler heads in the plant, and found the conditions to be acceptable.

The inspectors noted that the pending evaluation described the initial testing for the sprinkler heads, but did not specifically mention the subsequent testing which is required every ten years after the initial test. Exelon addressed this concern by revising the evaluation to add an action to ensure that subsequent testing will be scheduled.

b. Findings and Observations

No findings were identified.

.2.11 Commitment 12 - Perform inspection of electrical conduits in outdoor environment.

a. Scope of Inspection

The inspectors reviewed the license renewal application, Safety Evaluation Report, the licensee implementation plan, and the associated completed work order. The inspectors discussed this commitment with applicable plant staff and license renewal personnel. The inspectors reviewed the completed work order which demonstrated that the conduits were inspected.

b. Findings and Observations

No findings were identified.

.2.12 Commitment 13 - Perform inspection for Susquehanna Substation wooden pole.

a. Scope of Inspection

The inspectors reviewed the license renewal application, safety evaluation report, the licensee implementation plan, and the associated completed work order. The inspectors discussed this commitment with applicable plant staff and license renewal personnel.

The inspectors reviewed the completed work order and the utility pole inspection report to verify that the inspection was performed in accordance with Exelon's technical specification. The inspectors walked down the utility pole to observe the physical conditions and evidence of proper fumigant injection. The inspectors found the conditions to be acceptable.

b. Findings and Observations

No findings were identified.

.2.13 Commitment 14 - Perform one-time inspection of wall thickness of selected torus piping.

a. Scope of Inspection

The inspector reviewed the work orders which measured the wall thickness of selected torus piping. The results of these measurements indicated that the measured piping segments had wall thickness greater than the minimum required for operation. The inspectors reviewed the work order, dated September 23, 2010, for Unit 2 refueling outage 18 (2RFO18) and data sheets for ultrasonic examination of torus main steam safety relief valve tailpipes, high pressure coolant injection and reactor core isolation cooling system piping in the region of three inches above and below the normal torus waterline to determine that the minimum wall thickness requirements were met. The inspectors review included a comparison of the thickness measurements to the thickness requirements and the applicable ultrasonic test procedure, ER-AA-335-004 and discussed this commitment with applicable plant staff and license renewal personnel. The inspectors noted this item was completed with a determination of no component degradation.

b. Findings and Observations

No findings were identified.

.2.14 Commitment 15 - Perform inspection of polyvinyl chloride insulated fire safe shutdown cables in drywell.

a. Scope of Inspection

The inspectors reviewed the license renewal application, safety evaluation report, the licensee implementation plan, and the associated completed work order. The inspectors discussed this commitment with applicable plant staff and license renewal personnel. The inspectors verified that the required inspections have been completed.

The inspectors reviewed NRC Inspection Reports 05000277&278/2002010 and 05000277&278/2002012 and noted that the previous NRC inspections of this program identified concerns about the quality of training for the personnel performing the cable insulation inspections. The resolution was to revise the work orders to include the statement, "The individual performing this inspection must be task qualified per the applicable Exelon training requirements." Based on the low difficulty of performing the inspections and based on the lack of any specialized qualifications available through Exelon or through industry standards, Exelon concluded that the standard electrical maintenance qualifications were adequate for performing the visual inspection of the polyvinyl chloride elastomer insulated fire safe shutdown cables. Based on this

corrective action, it did not appear that Exelon had appropriately enhanced the training and qualification of the cable inspection staff.

In response, Exelon documented the issue in a corrective action, reviewed the qualifications of the cable inspectors, and revised the future work orders to require specific training that includes pictures or examples of age degraded cable insulation. Exelon determined that the two personnel who performed the cable inspections each had thirty years of nuclear electrical maintenance experience. Based on their experience, Exelon determined that there was reasonable assurance that the inspections were adequately performed. The inspectors determined that Exelon's conclusion was appropriate and that the revisions to the work orders provided reasonable assurance that future cable inspections would be performed by adequately trained personnel.

b. Findings and Observations

No findings were identified.

.2.15 Commitment 16 - Implement inspection program for non-environmentally qualified accessible cables and connections, including fuse blocks.

a. Scope of Inspection

The inspectors reviewed the license renewal application, Safety Evaluation Report, the licensee implementation plan, and the associated work orders. The inspectors discussed this commitment with applicable plant staff and license renewal personnel. The inspectors verified that the required inspections have been complete at Unit 2 and that an open work order exists for the pending inspection at Unit 3. The inspectors performed a walk down of Unit 2 to verify Exelon's conclusions and to independently assess the condition of the cables and connections. The inspectors noted that Exelon's documented walk down was thorough and the inspectors did not identify any new concerns.

b. Findings and Observations

No findings were identified.

.2.16 Commitment 17 - Perform one-time piping inspection activities for standby liquid control system, auxiliary steam system, plant equipment and floor drain system, service water system, radiation monitoring system.

Commitment 18 - Implement a one-time inspection of susceptible locations for loss of material in fuel pool cooling system to verify effectiveness of fuel pool chemistry activities.

Commitment 19 - Perform one time inspection of carbon steel piping for loss of material in reactor pressure vessel instrumentation and reactor recirculation system.

a. Scope of Inspection

The objective of the inspections implemented in response to Commitments 17, 18, and 19 was to evaluate loss of material and cracking in piping in various systems. Exelon chose to perform ultrasonic testing to measure the piping wall thickness and inspect for cracking. The inspectors reviewed the license renewal application, safety evaluation report, and the licensee implementation plan and results binder, and discussed this commitment with applicable plant staff and license renewal personnel. The inspectors reviewed a summary of inspection results, the inspection reports for all 25 inspections, and associated corrective action documents.

The licensee had calculated the minimum wall thickness requirement for all the locations inspected and based on inspection results determined an appropriate re-inspection interval. Only one location initially merited re-inspection within the next 20 years. Based on subsequent evaluations of the ongoing corrosion and consideration of inspection results on Unit 3, the licensee revised follow up actions at a total of three locations, including re-inspection within 4 years at one location, an expanded extent of condition for one location (4 additional samples to be inspected within 6 months), and re-evaluation of a location based on future inspection of a similar Unit 3 location.

b. Findings and Observations

No findings were identified.

2.17 Commitment 20 - Perform testing of inaccessible medium voltage cables.

a. Scope of Inspection

The inspectors reviewed the license renewal application, safety evaluation report, the licensee implementation plan, and the associated completed work orders. The inspectors discussed this commitment with applicable plant staff and license renewal personnel. The inspectors reviewed the cable testing results and verified that issue reports were written to address the results. The inspectors performed a walk down of manholes to observe the conditions.

The inspectors noted that the material condition of manhole #25 had significantly improved since the NRC inspected it as documented in NRC Inspection Report 05000277&278/2002010. The inspectors did note that water was contacting some cables in section 'D' of manhole #25. Exelon generated an issue report to pump the water out and to adjust the alarm set point for the manhole level detector. The inspectors noted that these actions were consistent with Exelon's manhole program, corrective action program, and industry guidance.

The inspectors also inspected the SBO manholes. Although the conditions of the manholes were acceptable, Exelon determined that the three SBO manholes were not in the manhole monitoring program. An issue report was written to evaluate the inclusion of the manholes into the program.

b. Findings and Observations

No findings were identified.

.2.18 Commitment 21 - Implement the final version of the fuse holder interim staff guidance when issued by the NRC.

a. Scope of Inspection

During a previous NRC inspection of Peach Bottom Atomic Power Stations' application for license renewal, during the week of April 5-13, 2002, (NRC Inspection Report 05000277&278/2002009) the NRC noted that Exelon had not included fuse holders (clips) within the scope of license renewal. Because the aging of fuse holders, which are a passive long-lived component, had not been considered, to this point, in renewing licenses, the regional inspectors held open the subject in the report. The report documented that fuse clips (or holders), within the scope of the application, were generally classified as active components by the applicant. Classification of some of the clips as active was considered incorrect. This item was subsequently closed by NRC inspection when Exelon included fuse holders in the scope of license renewal and performed an aging management review. These actions resulted in the commitment, by Exelon, to implement the final version of the fuse holder interim guidance.

The NRC subsequently developed Interim Staff Guidance ISG-05, "Interim Staff Guidance (ISG)-5 on the Identification and Treatment of Electrical Fuse Holders for License Renewal," dated March 10, 2003 (ML030690492). This interim staff guidance was later incorporated into NUREG-1800, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants," Revision 2 in Table 2.1-5 and into NUREG-1801, "Generic Aging Lessons Learned (GALL) Report," as AMP XI.E5. The interim staff guidance was retired by the NRC when the requirements, stipulated in the guidance, were absorbed by NUREGs 1800 and 1801. This was performed by NRC letter to the Nuclear Energy Institute dated February 6, 2007 (NRC ADAMS ML063610002).

Because the commitment specifically stated the applicant would implement the "final version of the fuse holder interim staff guidance when issued by the NRC" the inspectors used ISG-05 as the standard for measuring Exelon's fulfillment of the commitment. The inspector reviewed work order R1223999-02 implementing the program and action request A1329928, which implemented a visual examination of fuse holders external to an active assembly. The inspectors reviewed recurring task R1224001 which reported the results of the inspections.

b. Findings and Observations

No findings were identified.

.2.19 Commitment 22 - Implement fatigue management program.

a. Scope of Inspection

Exelon transitioned, as part of the renewal process, from a manual transient counting method to a computerized program of counting and computation. Procedure ER-AA-470, "Fatigue and Transient Monitoring Program," Revision 5, and ST-J-080-940-2, "Reactor Pressure Vessel Transients Cycle Record," Revision 7 are the revisions made to implement the computer program after updating the cycle assumptions originally recorded in Table 4.2.4 "Reactor Design Cycles (40-Year Life)" of the Final Safety Analysis Report and computing a new base line fatigue analysis in Calculation Package

PBAP-14Q-301, Project 0900740, "Fatigue Analysis Update for Peach Bottom Units 2 and 3. ECR 11-00367, "Fatigue Program Updates for License Renewal" was issued to record the program updates as a consequence of license renewal. The inspectors reviewed the baseline calculations, procedures, and compared this against prior history.

b. Findings and Observations

No findings were identified.

.2.20 Commitment 23 - Submit RPV pressure and temperature (P-T) curves for 54 Effective Full Power Years.

a. Scope of Inspection

The pressure and temperature limits for heat up and criticality are calculated for a 40-year design or 32 years of effective full power. The application indicated Exelon would determine the pressure and temperature limits for 60 years, equal to 54 effective full power years, in accordance with 10 CFR 54.21(c)(1)(ii), after the General Electric Nuclear (now GE Hitachi Nuclear Energy) fluence methodology was approved by the NRC.

The Peach Bottom Atomic Power Station specific calculations were revised and new limiting curves were implemented after the GE Hitachi Nuclear Energy nuclear fluence methodology was approved by the NRC in September 2001. The pressure temperature curves were revised for a licensed 60-year life. In accordance with 10 CFR 50.90 Exelon requested, by letter dated April 27, 2012, a change to the Peach Bottom Atomic Power Station Technical Specification (Sections 1.1, "Definitions," 3.4.9 "RCS Pressure and Temperature (P/T) Limits," and 5.6 "Reporting Requirements"). The inspectors reviewed this submittal as well as the attached GE Hitachi Nuclear Energy Licensing Topical Report NEDC -33178P-A, Revision 1, "GE Hitachi Nuclear Energy Methodology for Development of Reactor Pressure Vessel Pressure-Temperature Curves."

b. Findings and Observations

No findings were identified.

.2.21 Commitment 24 - Submit RPV circumferential weld examination relief request for 60 years.

a. Scope of Inspection

The inspectors reviewed the Exelon letter, dated January 24, 2011, "Proposed Relief Request associated with the Requirements of 10 CFR 50.55a Concerning Reactor Pressure Vessel Circumferential Shell Welds," which satisfies the commitment's requirement to submit the relief request. In order to verify the quality of the request the inspectors further reviewed the NRC response to this request, dated January 24, 2012, "Peach Bottom Atomic Power Station, Units 2 and 3 – Requests for Relief 14R-51 and 14R-52 (TAC Nos. ME5392, ME5393, ME5394, and ME5395)," in which the NRC granted relief from the requirement noting: "the licensee has demonstrated that the conditional probability of failure of the reactor pressure vessels, with no inspection of the circumferential welds, is bounded through the period of extended operation. This is in

accordance with the applicable limiting conditional probability of failure from the NRC staff's final safety evaluation of BWRVIP-05.”

b. Findings and Observations

No findings were identified.

.2.22 Commitment 26 - Obtain NRC review and approval for an inspection program if used to manage the effects of fatigue for RPV studs when cumulative usage factor approaches 1.0.

a. Scope of Inspection

The licensee reconsidered the difficulty of identifying fatigue damage in components approaching the theoretical fatigue end-of-life. Within the context of corrective actions for AR 01464206, the licensee stated they plan to modify this commitment to only include the options of reanalysis, replacement or repair when a component, or part of a component, reaches the fatigue theoretical end-of-life. For example contained within the unrevised commitment would be the requirement to submit, for approval, an inspection program that monitors the reactor pressure vessel head closure bolting as they approach the theoretical limit of 1.0 usage. Because Exelon maintains spare replacement closure studs and considering the difficulty of creating an inspection program, and submitting it for approval, Exelon concluded that it was unlikely that this option would be selected. The closure studs are monitored in ST-J-080-940-2(3), “Fatigue and Transient Monitoring Program,” with a resultant analysis indicating the current studs will not exceed a usage factor of one during the extended period of operation. The inspectors verified the analytic results in this procedure.

b. Findings and Observations

No findings were identified. The inspectors concluded there is reasonable assurance Commitment 26 will be modified in compliance with the accepted guidance for the management of commitments made to the NRC.

.2.23 Commitment 27 - Perform plant specific calculations for locations identified in NUREG-CR-6260 for older vintage plants to manage the effects of environmental fatigue. If this position is modified based on industry activities, obtain NRC approval prior to implementation.

a. Scope of Inspection

As part of the original application for a renewed license, Exelon took the position that the impact of newly developed environmental correction factors for carbon steel was not significant. To accommodate the environmental effect on stainless steel, they applied a correction factor of 2.0 based on the results of Electric Power Research Institute Topical Report TR-110356, “Evaluation of Environmental Thermal Fatigue Effects on Selected Components in a Boiling Water Reactor Plant”. Exelon used the data developed by the NRC in NUREG/CR-6583, “Effects of LWR Coolant Environments on Fatigue Design Curves of Carbon and Low-Alloy Steels,” and the environmental correction factors for austenitic stainless steels contained in NUREG/CR-5704, “Effects of LWR Coolant Environments on Fatigue Design of Austenitic Stainless Steels,” to justify this approach.

Because TR-110356, "Evaluation of Environmental Thermal Fatigue Effects on Selected Components in a Boiling Water Reactor Plant", was an analysis of a BWR-4 plant Exelon took credit for the results as being identical for their plant, Peach Bottom Atomic Power Station being of the same vintage. Because TR-110356 only analyzes the feedwater nozzle, and the control drive penetration locations, as the most limiting for fatigue, the NRC staff noted that this analysis may not be directly applicability to all the susceptible components listed in NUREG-CR-6260, "Application of NUREG/CR- 5999, 'Interim Fatigue Curves to Selected Nuclear Power Plant Components,'" dated March 1995.

The inspectors reviewed analysis 1101048.306, "Peach Bottom EAF Analysis," dated June 29, 2012. This analysis of the environmental effects on fatigue utilizes water chemistry inputs located at the reactor pressure vessel shell and lower head, the reactor pressure vessel feedwater nozzle blend radius and safe end. Additional inputs include core spray piping and nozzle safe end from the condensate storage tank, and various parts of the residual heat removal piping, nozzles, and safe ends.

Using these inputs a bounding analysis was performed for 60 years of licensed operation for the following locations: closure bolts, core spray nozzle, feedwater loop-A nozzle safe end, feedwater loop-B nozzle safe end, feedwater piping, jet pump shroud support, main steam piping, residual heat removal return line-A, line-B, tee-A and B, recirculation inlet and outlet nozzles, refueling containment skirt, shroud support, torus penetrations 2 and 3, and the torus shell. This analysis therefore includes the NUREG/CR-6260 locations of the recirculation inlet nozzle, recirculation outlet safe end, recirculation and residual heat removal tees, core spray nozzle, shroud support, shell, feedwater nozzle, and feedwater piping.

b. Findings and Observations

No findings were identified.

.2.24 - Review of the Unit 2 pressure suppression chamber (Torus) coating repair.

a. Scope of Inspection

The Unit 2 torus is made from carbon steel plate sections and the inside surface is coated with an epoxy coating to protect the torus from corrosion. As reported in NRC Inspection Report 05000277&278/2002010, dated September 27, 2002, which reviewed the proposed aging management programs, the primary containment inservice inspection program manages loss of material in pressure boundary components and supports of the drywell, pressure suppression chamber, and the vent system. The components monitored in the suppression chamber are: the shell, ring girders, access hatches, and penetrations. The report noted that indications of coating degradation and loss of material in some wetted areas of the pressure suppression chamber were found in 1991, and the interior surface of the torus were re-coated and the water chemistry was improved to mitigate the degradation.

In 1991, ABB-Impell prepared Calculation Number 0670-077-001, Revision 2, "Structural Analysis of the Torus Shell for the Effects of Local and Global Corrosion at PBAPS." This calculation provided a method to aggregate the effect of numerous pits and to determine whether the original, American Society of Mechanical Engineers, Boiler and Pressure Vessel Code requirements for structural integrity were maintained after repair.

By PECO letter (PECO was the prior owner of Peach Bottom Atomic Power Station) dated August 11, 1999, the licensee proposed alternatives to the ASME Code to measure and analyze the pitting corrosion, by requests CRR-01 and CRR-11. The NRC issued a safety evaluation report (NRC letter dated September 17, 1999) that accepted the proposed alternative approach.

However, after an additional 10 years of operation the coating developed pitting corrosion defects and required frequent pit measurement and coating repairs. The inspector reviewed the work order that controlled the draining, coating removal, and the interior abrasive cleaning of the Unit 2 torus coating that was completed during the fall 2012 refueling outage. After outage inspections and repairs and after the fall 2012 cleaning and epoxy re-coating, Exelon's analysis showed that the original torus structural integrity was maintained.

Further Exelon completed an extensive analysis for the new coating (BIO DUR 560 BLUE) and verified that the coating is intended to protect the torus for the period of extended operation of Peach Bottom Atomic Power Station Unit 2.

As part of the review of the torus coating repair the inspectors walked down the accessible portions of the torus exterior surface for the Units 2 and 3 Torus Rooms.

b. Findings and Observations

No findings of were identified.

.2.25 - Enhancements to the fuel oil program.

a. Scope of Inspection

The NRC License Renewal Safety Analysis Report, Section 3.0.3.18.2, states that: "Enhancements to the diesel-driven fire pump fuel oil sampling techniques will be made to improve the methods for detection of water in the fuel." The applicant further stated that sampling activities for water that may be detected in the emergency diesel generator and diesel-driven fire pump fuel oil systems would be enhanced to include an analysis for microbes.

The inspectors reviewed the license renewal application, safety evaluation report, and the licensee implementation plan and results binder, and discussed this enhancement with applicable plant staff and license renewal personnel. The inspectors also reviewed the in-plant conditions of the fuel oil system for diesel-driven fire pump. For the diesel-driven fire pump, the licensee revised two procedures for sampling and analysis of the fuel oil supply for the pump. The inspectors reviewed the revised procedures, which addressed sampling from the bottom of the tank and detection of water.

For the analysis of microbes in the diesel-driven fire pump oil supply and the emergency diesel generator oil supplies, Exelon revised the fire pump oil sampling procedures and the emergency diesel generator sampling and analysis procedures to specify analysis of any detected water for microbes. The inspector sampled the revised procedures to confirm that analysis for microbes was specified for detected water. The inspectors also reviewed corrective action documents and laboratory testing results for some of the few instances where water was detected in fuel oil.

b. Findings and Observations

No findings were identified.

.2.26 - Enhancement of the heat exchanger inspections.

a. Scope of Inspection

The NRC License Renewal Safety Evaluation Report, Section 3.0.3.17.2 states: "The applicant further stated that the existing maintenance procedures for the HPCI gland seal condenser would be enhanced to include periodic inspections of the condenser tube side internals to provide assurance of aging management for loss of material and cracking of the HPCI gland seal condenser."

The inspectors reviewed the license renewal application, safety evaluation report, and the licensee implementation plan, and discussed this enhancement with applicable plant staff and license renewal personnel. The inspectors reviewed the work order for the maintenance on the high pressure coolant injection pump gland seal condenser, which was completed on September 23, 2004, and the work order for the same maintenance scheduled for October 2014. Both work orders appropriately addressed inspections of the condenser tube side internals.

b. Findings and Observations

No findings were identified.

.2.27 License Condition - core shroud inspection and evaluation guidelines program.

a. Scope of Inspection

This license condition reviewed concurrently requires the implementation of commitment 25, which is to "implement BWRVIP-76 when approved by the NRC and accepted by the BWRVIP Committee." The inspectors verified the license conditions added as part of the renewed license are implemented in accordance with 10 CFR 54, "Requirements for the Renewal of Operating Licenses for Nuclear Power Plants."

The inspectors chose the following license condition of DPR-44, Docket 50-277 (and Unit 3: DPR-56 Docket 50-278):

Core Shroud Inspection and Evaluation Guidelines Program - The Exelon Generation Company shall implement an NRC staff approved core shroud inspection and evaluation guidelines program for the extended period of operation which satisfies the requirements of 10 CFR Part 54. Such a program will be implemented through a staff approved Boiling Water Reactor Vessel and Internals Project program or through a staff-approved plant-specific program. Before August 8, 2013, (July 2, 2014) the licensee will notify the NRC of its decision to implement the core shroud inspection and evaluation guidelines program or a plant-specific program, and provide the appropriate revisions to the Updated Final Safety Analysis Report Supplement summary descriptions of the core shroud inspection and evaluation guidelines program.

The inspectors reviewed the license renewal application, safety evaluation report, the licensee implementation plan, the site inspection results from the Unit 2 refueling outage (2R19) core shroud examinations, and discussed this license renewal commitment and related license condition with applicable plant staff and license renewal personnel. The inspectors noted that technical evaluation 1404300-01 and the associated data sheets describe extensive ultrasonic and visual examinations of the core shroud horizontal and vertical welds and their structural integrity analysis for examinations done during refueling outage 2R19 per the Electric Power Research Institute BWRVIP-76, Revision 1.

Additionally, as documented in NRC Inspection Report 05000277/2012004, during the refueling outage (2R19) in September 2012; an NRC inspection was performed of the remote enhanced visual examination records of reactor vessel internals as done under water inside the reactor vessel per procedure GEH-UT-204, Version 14. The internals vessel visual inspection video records, for both previously identified indications and their current appearance during the 2R19 refueling outage, were reviewed. The inspection scope included portions of the core shroud, steam dryer, steam separator, jet pump components, and top guide bars. Also, the applicable parts of the internals vessel visual inspection procedure, observation of a sample of digital video records, the analysis process for the observations, and documentation of indications were reviewed.

b. Findings and Observations

No findings were identified.

4OA6 Meetings, Including Exit

On January 31, 2013, the NRC inspectors presented the inspection results to Mr. Patrick Navin, Plant Manager and other PBAPS staff, who acknowledged the findings. Mr. James Trapp, Chief, USNRC, Region 1, Division of Reactor Safety, Engineering Branch 1, attended the inspection exit meeting. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

**SUPPLEMENTARY INFORMATION**

**KEY POINTS OF CONTACT**

Exelon Generation Company Personnel

S. Allen, Chemist  
J. Armstrong, Regulatory Assurance Manager  
J. Bowers, Training Director  
R. Brower, Electrical Design Manager  
G. Cillufo, System engineer, raw water  
B. Henningan, Operations Training Manager  
K. Hudson, Peach Bottom Engineering  
R. Lack, Peach Bottom License Renewal  
D. Lord, Peach Bottom Coatings Engineer  
T. Moore, Site Engineering Director  
B. Miller, Fire Protection System Manager  
P. Navin, Plant Manager  
P. Rau, Work Management Director  
R. Reiner, Chemistry Manager  
D. Sears, Electrical Design Engineer  
J. Stenclik, Supervisor, chemistry  
B. Sessions, Service water system manager

**LIST OF ITEMS OPENED, CLOSED, DISCUSSED**

Opened

None

Opened/Closed

None

Closed

None

Discussed/Closed

None.

**LIST OF DOCUMENTS REVIEWED**Results Binders

- Book #1.1 Commitment Tracking Number T04338, "Peach Bottom Atomic Power Station, Flow Accelerated Corrosion, Aging Management Program Result Binder" 04/17/2012
- Book #1.2 Commitment Tracking Number T04336, "Peach Bottom Atomic Power Station, Reactor Coolant System Chemistry, Aging Management Program Result Binder" 05/02/2012
- Book #1.3 Commitment Tracking Number T04336, "Peach Bottom Atomic Power Station, Closed Cooling Water Chemistry , Aging Management Program Result Binder" 05/02/2012
- Book #1.4 Commitment Tracking Number T04336, "Peach Bottom Atomic Power Station, Demineralized Water and Condensate Storage Tank Chemistry Activities, Aging Management Program Result Binder" 05/02/2012
- Book #1.5 Commitment Tracking Number T04336, "Peach Bottom Atomic Power Station, Torus Water Chemistry Activities, Aging Management Program Result Binder" 05/02/2012
- Book #1.6 Commitment Tracking Number T04336, "Peach Bottom Atomic Power Station, Fuel Pool Chemistry Activities, Aging Management Program Result Binder" 05/02/2012
- Book #1.7 Commitment Tracking Number T04336, "Peach Bottom Atomic Power Station, Fuel Pool Chemistry Activities, Aging Management Program Result Binder" 04/18/2012
- Book #1.8 Commitment Tracking Number T04336, "Peach Bottom Atomic Power Station, Inservice Inspection (ISI) Program, Aging Management Program Result Binder" 06/02/2012
- Book #1.9 Commitment Tracking Number T04335, "Peach Bottom Atomic Power Station, Primary Containment Inservice Inspection Program, Aging Management Program Result Binder" 04/46/2012
- Book #1.10 Commitment Tracking Number T04336, "Peach Bottom Atomic Power Station, Primary Containment Leakage Rate Testing Program, Aging Management Program Result Binder" 06/06/2012
- Book #1.11 Commitment Tracking Number T04335, "Peach Bottom Atomic Power Station, Inservice Testing (IST) Program, Aging Management Program Result Binder" 05/02/2012
- Book #1.12 Commitment Tracking Number T04336, "Peach Bottom Atomic Power Station Reactor Materials Surveillance Program, Aging Management Program Result Binder" 04/17/2012
- Book #1.13 Commitment Tracking Number T04473, "Peach Bottom Atomic Power Station, Corrective Action Program, Aging Management Program Result Binder" 04/16/2012
- Book #1.14 Commitment Tracking Number T04328, "Peach Bottom Atomic Power Station, Crane Inspection Activities, Aging Management Program Result Binder" 05/02/2012
- Book #1.15 Commitment Tracking Number T04504, "Peach Bottom Atomic Power Station, Conowingo Hydroelectric Plant (Dam), Aging Management Program Result Binder" 04/18/2012
- Book #1.16 Commitment Tracking Number T04344, "Peach Bottom Atomic Power Station, Maintenance Rule Structural Monitoring Program, Aging Management Program Result Binder" 05/02/2012
- Book #1.17 Commitment Tracking Number T04476, "Peach Bottom Atomic Power Station, Electrical Cables not subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits, Aging Management Program Result Binder" 06/04/2012

- Book #2.1b Commitment Tracking Number T04336, "Peach Bottom Atomic Power Station, Fuel Oil Quality Testing Activities, Aging Management Program Result Binder" 06/04/2012
- Book #2.1a Commitment Tracking Number T04326, "Peach Bottom Atomic Power Station, Lubricating Quality Testing Activities, Aging Management Program Result Binder" 05/02/2012
- Book #2.2 Commitment Tracking Number T04330, "Peach Bottom Atomic Power Station, Boraflex Management Activities, Aging Management Program Result Binder" 04/30/2012
- Book #2.3 Commitment Tracking Number T04324, "Peach Bottom Atomic Power Station, Ventilation System Inspection and Testing Activities, Aging Management Program Result Binder" 06/06/2012
- Book #2.4 Commitment Tracking Number T04332, "Peach Bottom Atomic Power Station, Emergency Diesel Generator Inspection Activities, Aging Management Program Result Binder" 06/06/2012
- Book #2.5 Commitment Tracking Number T04329, "Peach Bottom Atomic Power Station, Outdoor, Buried, and Submerged Component Inspection Activities, Aging Management Program Result Binder" 06/04/2012
- Book #2.6 Commitment Tracking Number T04331, "Peach Bottom Atomic Power Station, Door Inspection Activities, Aging Management Program Result Binder" 06/06/2012
- Book #2.7 Commitment Tracking Number T04336, "Peach Bottom Atomic Power Station, Reactor Pressure Vessel and Internals ISI Program, Aging Management Program Result Binder" 04/17/2012
- Book #2.8 Commitment Tracking Number T04333, "Peach Bottom Atomic Power Station, Generic Letter 89-13 Activities, Aging Management Program Result Binder" 06/06/2012
- Book #2.9 Commitment Tracking Number T04342, "Peach Bottom Atomic Power Station, Fire Protection Activities, Aging Management Program Result Binder" 06/06/2012
- Book #2.10 Commitment Tracking Number T04340, "Peach Bottom Atomic Power Station, HPCI and RCIC Turbine Inspection Activities, Aging Management Program Result Binder" 04/06/2012
- Book #2.11 Commitment Tracking Number T04348, "Peach Bottom Atomic Power Station, Susquehanna Substation Wooden Pole Inspection Activity , Aging Management Program Result Binder" 04/18/2012
- Book #2.12 Commitment Tracking Number T04339, "Peach Bottom Atomic Power Station, Heat Exchanger Inspection Activities, Aging Management Program Result Binder" 05/02/2012
- Book #3.1 Commitment Tracking Number T04349, "Peach Bottom Atomic Power Station, Torus Piping Inspection Activities, Aging Management Program Result Binder" 04/17/2012
- Book #3.2 Commitment Tracking Number T04337, "Peach Bottom Atomic Power Station, FSSD Cable Inspection Activities, Aging Management Program Result Binder" 04/17/2012
- Book #3.3 Commitment Tracking Number T04475, "Peach Bottom Atomic Power Station, Non-EQ Accessible Cable Aging Management Activities, Aging Management Program Result Binder" 06/18/2012
- Book #3.4 Commitment Tracking Number T04474, "Peach Bottom Atomic Power Station, One-Time Piping Inspection Activities, Aging Management Program Result Binder" 04/18/2012
- Book #3.5 Commitment Tracking Number T04477, "Peach Bottom Atomic Power Station, Inaccessible Medium-Voltage Cables not subject to 10 CFR 50.49 Environmental Qualification Requirements, Aging Management Program Result Binder" 04/25/2012
- Book #3.6 Commitment Tracking Number T04478, "Peach Bottom Atomic Power Station, Fuse Holder Aging Management Activity, Aging Management Program Result Binder" 04/17/2012

Book #4.1 Commitment Tracking Number T04412, "Peach Bottom Atomic Power Station, Environmental Qualification Activities, Aging Management Program Result Binder" 04/17/2012

Book #4.2 Commitment Tracking Number T04411, "Peach Bottom Atomic Power Station, Fatigue Management Activities, Aging Management Program Result Binder" 06/06/2012

Book #5.1.1.2 Action Request Tracking Number: A1329928.02, "Peach Bottom Atomic Power Station, Submit RPV P-T Curves for 54 EFPY As License Amendment, Aging Management Program Result Binder" 06/02/2012

Book # 5.1.1.3 Action Request Tracking Number: A1329928.03, "Peach Bottom Atomic Power Station, Reactor Vessel Circumferential Weld Examination Relief, Aging Management Program Result Binder" 06/02/2012

Book # 5.2.4 Action Request Tracking Number: A1329928.30, "Peach Bottom Atomic Power Station, Effects of Reactor Coolant Environment on Fatigue Life of Components and Piping, Aging Management Program Result Binder" 06/01/2012

Work Orders (WOs):

C0242512-35, Fire valve HV-0-37B-12304 replacement

C0242562-34, Fire valve HV-0-37B-12308 replacement

C0242688-33, Fire valve HV-0-37B-12305 replacement

R0236449, Clean bottom head of HPCI gland seal condenser

R0781607, Clean bottom head of HPCI gland seal condenser

R1221704-02, Water removal from fuel oil tank

Condition Reports (CRs):

01163292, Water in E1 fuel oil

01206733, Water in E1 fuel oil

01206734, Water in E4 fuel oil

01219581, Microbes in E1 fuel oil

01219593, Microbes in E3 fuel oil

01303794, GL 89-13 Commitment methodology change

01226799, FSAR Q.2.8 resolution

01257959, Fire system testing for selective leaching

01306107, Microbes in E4 EDG fuel oil tank

01374335, Frequency of diesel fire pump fuel oil storage tank sampling

01450779, Standby liquid control system piping evaluations

01464878, Possible water in E3 fuel oil

01466258, Auxiliary steam system piping evaluations

01466441, Service water system piping evaluations

01467321, Floor drain system piping evaluations

01467323, ESW rad monitor piping evaluations

01467324, Service water system piping evaluations

ARs:

A0355539, HPCI gland seal condenser

A1029721, Fuel oil evaluation

A1331158, UT of isolated Unit 2 ECCS coolers

A1331672, UT of isolated Unit 2 ECCS coolers

A1173218	A1652000	R0778158
A1173220	A1652001	R0778160
A1173223	A1652002	R0778163
A1173225	A1652003	R0778168
A1173227	A1652004	R0877202
A1173229	A1652006	R0877204
A1173229	A1760803	R0877206
A1173235	A1769021	R0878187
A1329928	A1779729	R0938474
A1329928	A1807788	R1176320
A1332409	R0569240	R1196439
A1332506	R0778148	

IRs

1343424

1350737

1445365

1468383\*

1468402\*

1468529\*

1468843\*

\*written as a result of this inspection

Drawings & Sketches:

Bechtel drawing. S-188, Revision 3; Peach Bottom Atomic Power Station Units 2 & 3; Reactor Building Drywell Vessel Foundations Pour Sequences, Unit 2 & 3

Engineering Evaluations, Analyses, Calculations & Standards:

Coating Qualification Testing Report For BIO-DUR 560 BLUE, Report No. DBA 07204, Revision 1

Coating Qualification Supplemental Test Report For BIO-DUR 560 BLUE, Report No. DBA 07204-1, Revision 0

ABB-Impell Corporation Report No. 03-0670-1360, Revision 0, November 1991

Impell Calculation Number 0670-077-001, Revision 2, 11/15/91; Structural Analysis of the Torus Shell for the Effects of Local and Global Corrosion at PBAPS

Peach Bottom Unit 3 Containment Contract 9-7863, Documents For CB&I OA Manual, Nuclear Contract Manual, 5/14/70

10 CFR 50.59 Screen/Evaluation of the use of ABB-Impell Calculation and the Unit 2 Torus Recoat, 9/2012

Exelon ASME Code Relief Request CRR-11, Revision 0; Alternate Examination

Program for Wetted and Submerged Suppression Chamber Interior Surfaces; February 17 and August 11, 1999.

Procedures:

Augmented Containment Inspection Program Number AUG-CC, Examination of Drywell Airgap Drain Lines; PBT05.G06, Revision 2  
Work Orders & Work Requests:  
W.O. R1114211 (Unit 2 Torus piping UT measurements)  
W.O. R1081242 (Unit Torus piping UT measurements)  
UT procedure, ER-AA-335-004, Rev 6., Ultrasonic (UT) Measurements of Material Thickness and Interfering Conditions  
ER-AA-340, GL 89-13 Program Implementing Procedure, Revision 6  
ER-AA-340-1001, GL 89-13 Program Implementation Instructional Guide, Revision 8  
ER-AA-340-1002, Service Water Heat Exchanger Inspection Guide, Revision 5  
ER-AA-700-401, License Renewal Selective Leaching Program, Draft Revision 0a  
LS-AA-110, Commitment Change Evaluation Form, completed December 10, 2012  
LS-AA-110, Commitment Management, Revision 9  
LS-AA-110-1002, Commitment Tracking Program for Use with PIMS, Revision 7  
MA-AA-723-500, Inspection of Non-EQ Cables and Connections for Managing Adverse Localized Environments, Revision 5  
SI2N-60C-WRNM-A1MX, WRNM Signal to Noise Ratio and Discriminator Check A, Revision 4  
SI2N-60C-WRNM-B1MX, WRNM Signal to Noise Ratio and Discriminator Check B, Revision 4  
SI2N-60C-WRNM-C1MX, WRNM Signal to Noise Ratio and Discriminator Check C, Revision 4  
SI2N-60C-WRNM-D1MX, WRNM Signal to Noise Ratio and Discriminator Check D, Revision 4  
SI2N-60C-WRNM-E1MX, WRNM Signal to Noise Ratio and Discriminator Check E, Revision 4  
SI2N-60C-WRNM-F1MX, WRNM Signal to Noise Ratio and Discriminator Check F, Revision 4  
SI2N-60C-WRNM-G1MX, WRNM Signal to Noise Ratio and Discriminator Check G, Revision 5  
ST-I-60A-230-2, LPRM Gain Calibration, Revision 31  
ST-C-095-885-2, Diesel Generator Main Fuel Tank Sampling and Analysis, Revision 13, completed on March 23, 2012  
ST-C-37D-371-2, Diesel Driven Fire Pump Fuel Oil Sample Analysis, Revision 5, completed on March 5, 2012  
ST-O-37D-371-2, Diesel Driven Fire Pump Fuel Oil Sample, Revision 11, completed on February 12, 2012  
ST-O-52D-600-2, Emergency Diesel Generator Main Fuel Oil Storage Tank Water Removal, Revision 11, completed on March 23, 2012  
ST-O-52D-602-2, E2 Diesel Generator Fuel Oil Day Tank Water and Sediment Removal and Level Verification, Revision 5, completed on March 31, 2012

Engineering Change Requests:

PB-97-01726-000, DCR – Incorporate Third Interval Changes to the ISI Program, Includes 10 CFR 50.59 Review

NRC Documents:

NRC Safety Evaluation, dated September 17, 1999, Subject: Safety Evaluation for Proposed Alternatives to ASME Section XI Requirements for Containment Inservice Inspection, Peach Bottom Atomic Power Station, Units 2 And 3 (Tac Nos. MA4973 and MA4974)

Exelon Documents:

Exelon Letter To The NRC Dated May 6, 2002, Subject: Peach Bottom Atomic Power Station, Units 2 and 3, Facility Operating License Nos. DPR-44 and DPR-56, NRC Docket Nos. 50-277 and 50-278.

Email, D. Summerville, Structural Integrity Associates, Inc to J. Searer, Peach Bottom, dated 1/29/2013 regarding the compatibility of Flaw Evaluations done to BWRVIP-76 , Revision 1 to the requirements of BWRVIP-76.

Binder 2.3 Torus piping Inspection Activities

2.1b, Fuel Oil Quality Testing Activities Aging Management Program Result Binder, Revision 0

Reports

IR# 1404300-01, Technical Evaluation for P2R19 Core Shroud Weld Examinations

IR 01468975 on the LR Shroud Inspection Program - EPRI BWRVIP-76-A: vs. BPRI BWRVIP-76, Rev 1

Standards and Specifications:

EPRI BWRVIP-76: BWR Vessel and Internals Project, BWR Core Shroud Inspection and Flaw Evaluation Guidelines

EPRI BWRVIP-76-A: BWR Vessel and Internals Project, BWR Core Shroud Inspection and Flaw Evaluation Guidelines

EPRI BWRVIP-76, Rev 1: BWR Vessel and Internals Project, BWR Core Shroud Inspection and Flaw Evaluation Guidelines

Miscellaneous:

Fire System Selective Leaching Plan, January 29, 2013

Listing of gray cast iron components in Units 2 & 3, January 30, 2013

Engineering Services Specification 8901, Technical Specification for Distribution System Wood Pole Inspections and Remediation, Dated 1/1/2005

NE-11-32-1, Peach Bottom Cable and Connection Inspection Summary Report, Revision 0

**LIST OF ACRONYMS**

ADAMS	Agencywide Documents Access and Management System
ASME	American Society of Mechanical Engineers
BWRVIP	Boiling Water Reactor Vessel Internal Program
CFR	Code of Federal Regulations
IMC	Inspection Manual Chapter
RPV	Reactor Pressure Vessel
SBO	Station Blackout
WRNM	Wide Range Neutron Monitors