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10CFR54

July 30, 2002

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

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

Subject: Response to Request for Additional Information

References:
1) July 2, 2001 Letter from Jeffrey A. Benjamin (Exelon), to NRC Document Control Desk Regarding Application for Renewed Operating Licenses

2) May 6, 2002 Letter from Michael P. Gallagher (Exelon), to NRC Document Control Desk Regarding Response to Request for Additional Information Related to Aging Management of Reactor Coolant System, Aging Management of Engineered Safety Feature Systems, Aging Management of Auxiliary Systems, and Aging Management of Steam and Power Conversion Systems

3) May 22, 2002 Letter from Michael P. Gallagher (Exelon), to NRC Document Control Desk Regarding Response to Request for Additional Information Related to Plant Level Scoping Results, Scoping and Screening Results: Mechanical, Scoping and Screening Results: Structures and Component Supports, and Scoping and Screening Results: Electrical and Instrumentation and Controls

Dear Sir/Madam:

Reference letter 1) transmitted an application for renewal of the operating licenses for the Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, including Aging Management Program B.2.9, "Fire Protection Activities." Subsequently, on May 9, 2002, the NRC requested additional information in order to complete its review of Aging Management Program B.2.9. Attachment 1 provides our response to the request for additional information.

The response to request for additional information (RAI) 3.3-4, which was provided by reference letter 2), provided information on aging effects for component groups for the emergency diesel generators. Subsequently, by teleconference dated July 15, 2002, the NRC requested additional information in order to complete its review. Attachment 2 provides our response to the request for additional information.

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The response to RAI 2.5-1, which was transmitted by reference letter 3), provided information on the structures and components required to recover the offsite power system following a station blackout. Subsequently, by teleconference dated June 18, 2002, and July 15, 2002, the NRC requested additional information in order to complete its review. Attachment 3 provides our response to the request for additional information.

The response to RAI 3.3-11, which was transmitted by reference letter 2), provided information on aging effects for bronze valve bodies in an outdoor environment in the fire protection system. Subsequently, by teleconference dated July 24, 2002, the NRC requested additional information in order to complete its review. Attachment 4 provides our response to the request for additional information.

If you have any questions or require additional information, please do not hesitate to call.

I declare under penalty of perjury that the foregoing is true and correct.

Respectfully,

Executed on 07-30-02

Michael P. Gallagher
Director, Licensing & Regulatory Affairs
Mid-Atlantic Regional Operating Group

Enclosures: Attachment 1 - 4

cc: H. J. Miller, Administrator, Region I, USNRC
A. C. McMurtray, USNRC Senior Resident Inspector, PBAPS

ATTACHMENT 1

Exelon Generation Company, LLC (Exelon)
License Renewal Application (LRA)
Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3

Supplemental Request for Additional Information

Supplemental Request for Information Regarding B.2.9, "Fire Protection Activities"

Discuss your program for internal inspections of fire protection piping as stated in NUREG-1801, Chapter XI.M27, AFire Water Systems≅ to detect wall thinning due to internal corrosion. A concern has been raised that each time the system is opened, oxygen is introduced into the system and this accelerates the potential for general corrosion. Therefore, it may be desirable to use non-intrusive means of measuring wall thickness such as ultrasonic inspection to detect this aging effect.

Response:

Aging management activity B.2.9 has been revised to include performance of volumetric examination of fire protection piping to evaluate wall thickness and detect loss of material. For your convenience, the revised B.2.9 activity is provided below.

B.2.9 Fire Protection Activities

ACTIVITY DESCRIPTION

The fire protection activities provide for inspections, monitoring, and performance testing of fire protection systems and components to detect aging effects prior to loss of intended function. Degradation of fire protection systems and components due to corrosion buildup, biofouling, and silting are detected by performance testing based on NFPA 24 standards. Periodic and maintenance inspections detect corrosion, fouling, and cracking in system components due to internal and external environment aging effects and detect aging effects in fire barriers. Periodic wall thickness evaluations will manage loss of material aging effects to ensure against catastrophic fire protection system piping failure. Monitoring of system pressure detects system leakage due to both internal and external aging effects. The aging management review determined that the scope of components covered by these activities will be enhanced to provide added assurance of aging management. In addition, a one-time test will be conducted to detect loss of material due to selective leaching.

EVALUATION AND TECHNICAL BASIS

(1) Scope of Activity: Existing fire protection activities provide for inspections, system monitoring, and/or system performance tests of:

- fire protection system pumps, piping, sprinklers, and valves,
- diesel driven fire pump fuel oil system pumps, valves, piping and tubing,
- buried fire main piping and valves,
- outdoor fire hydrants, hose connections and hose station block valves, and

- fire barrier penetrations seals, fire barrier doors, and fire wraps exposed to sheltered and outdoor environments.

The scope of fire protection activities will be enhanced to:
- require additional inspection requirements for deluge valves in the power block sprinkler systems,
- perform functional tests of sprinkler heads that have been in service for 50 years,
- inspect diesel driven fire pump exhaust systems,
- inspect diesel driven fire pump fuel oil system flexible hoses,
- inspect fire doors for loss of material and,
- perform a one-time test of a cast iron fire protection component.

(2) Preventive Actions: The fire protection activities provide system monitoring, performance testing, and inspections to identify aging effects prior to loss of intended function. There are no preventive or mitigating attributes associated with these activities.

(3) Parameters Monitored/Inspected: The existing fire protection activities provide for:
- visual inspections of the fire protection system piping, sprinklers, and valves to detect loss of material, cracking, and flow blockage,
- volumetric examination of fire protection system piping at susceptible piping locations, to evaluate wall thickness and detect loss of material,
- visual inspection of fire pumps for loss of material and flow blockage during corrective maintenance activities,
- visual inspections of the diesel driven fire pump fuel oil system pumps, valves, piping and tubing to detect loss of material and cracking,
- monitoring of fire protection system pressure to detect leakage of buried fire main piping and valves,
- flow tests to detect fire protection system blockage and component degradation in buried fire main piping and valves, outdoor fire hydrants, hose connections, and hose station block valves, and
- visual inspections of fire barrier penetrations seals, fire barrier doors, and fire wraps to detect changes in material properties, cracking, delamination, separation, and loss of material.

Fire protection activities will be enhanced to include:
- power block deluge valve visual inspection requirements to include examinations for loss of material, cracking. and flow blockage,
- functional testing for flow blockage of sprinkler heads that have been in service for 50 years,
- visual inspections to detect loss of material of the diesel driven fire pump exhaust system,
- visual inspections to detect a change in material properties of the diesel driven fire pump fuel oil system flexible hoses,
- visual inspections of fire doors for loss of material,

- testing of a cast iron fire protection component to detect loss of material due to selective leaching.

(4) Detection of Aging Effects: The existing fire protection activities provide for:

- periodic visual inspections of the fire protection system piping, sprinklers, and valves that will detect loss of material, cracking, and flow blockage prior to loss of intended function,
- periodic volumetric examination of fire protection system piping at susceptible piping locations, to evaluate wall thickness and detect loss of material,
- visual inspection of fire pumps for loss of material and flow blockage during corrective maintenance activities,
- periodic visual inspections of the diesel driven fire pump fuel oil system pumps, valves, piping and tubing that will detect loss of material and cracking prior to loss of intended function,
- continuous monitoring of fire protection system pressure that will detect pressure boundary leakage of buried fire main piping and valves prior to loss of intended function,
- periodic flow tests that will detect fire protection system blockage and component degradation in buried fire main piping and valves, outdoor fire hydrants, hose connections, and hose station block valves prior to loss of intended function and,
- periodic visual inspections of fire barriers that will detect loss of material in fire doors, and changes in material properties, cracking, delamination, separation and loss of material in fire barrier penetrations and fire wraps prior to loss of intended functions.

Fire protection activities will be enhanced to include:

- periodic visual inspection of power block deluge valves to detect loss of material, cracking and flow blockage prior to loss of intended function,
- functional testing of sprinkler heads that have been in service for 50 years to detect flow blockage,
- periodic visual inspections of the diesel driven fire pump exhaust system to detect loss of material prior to loss of intended function,
- visual inspections of the diesel driven fire pump fuel oil system flexible hoses to detect a change in material properties prior to loss of intended function,
- added specificity for detection of loss of material in requirements for visual inspection of fire doors, and
- a one-time test of cast iron fire protection component to detect loss of material due to selective leaching.

(5) Monitoring and Trending: Existing fire protection activities provide for the following monitoring and trending activities:

- sprinkler systems are functionally tested for flow blockage on a periodic basis,
- visual and volumetric piping inspections are performed on a periodic basis,
- fire main flow testing, and hydrant flushes and inspections, are performed on a periodic basis,
- the diesel driven fire pump fuel oil system is visually examined for loss of material and cracking on a periodic basis,

- fire main pressure is continuously monitored for leakage,
- specified sample quantities of fire barrier penetration seals are inspected every 24 months with the entire population being inspected every 16 years for change in material properties, cracking, delamination, and separation, and
- fire wraps on structural steel and on electrical raceways are periodically visually inspected for change in material properties and loss of material.

Enhancements to fire protection activities will provide for the following monitoring and trending activities:

- sprinkler system deluge control valves will be visually inspected for loss of material, cracking, and flow blockage following sprinkler system testing,
- a representative sample of sprinkler heads that have been in service for 50 years will be functionally tested for flow blockage and verification of proper operation,
- the diesel driven fire pump exhaust system will be visually inspected for loss of material on a periodic basis,
- diesel driven fire pump fuel oil system flexible hoses will be visually examined for a change in material properties on a periodic basis,
- fire barrier doors will be visually inspected for loss of material on a periodic basis, and
- if the one-time test yields unfavorable results, the scope will be expanded to other components, based upon engineering evaluations.

Fire protection testing and inspections are performed in accordance with controlled PBAPS procedures. Any degradation identified during testing and component inspections is evaluated in accordance with procedural requirements. When applicable, trending of findings is performed to determine potential long term impact.

(6) Acceptance Criteria: Tests and inspections for flow blockage, loss of material, cracking, change in material properties, and cracking, delamination, and separation aging effects are conducted in accordance with approved PBAPS procedures. These procedures contain specific acceptance criteria to confirm the system's ability to maintain required system pressures and flow rates and specific acceptance criteria for components and fire barriers to confirm their functionality. The diesel driven fire pump engine manufacturer's representative is present during engine inspections and provides standards to ensure that inspections are properly performed and that the material condition of the exhaust and fuel oil system components is acceptable.

Acceptance criteria for fire barrier doors require that there be no visual indication of corrosion. Acceptance criteria for fire barrier penetrations seals and fire wraps require that they exhibit no change in material properties, cracking, delamination, separation and loss of material.

Acceptance criteria will be based upon component material specifications.

(7) Corrective Actions: Identified deviations are evaluated within the PBAPS corrective action process which includes provisions for root cause determinations and corrective actions to prevent recurrence as dictated by the significance of the deviation.

(8) Confirmation Process: The PBAPS corrective action process includes:

- Reviews to assure that proposed actions are adequate;
- Tracking and reporting of open corrective actions; and
- For root cause determinations, reviews of corrective action effectiveness.

(9) Administrative Controls: All credited aging management activities are subject to administrative controls, which require formal reviews and approvals.

(10) Operating Experience: Buried cast iron components have typically demonstrated reliable performance in commercial and industrial applications for long operational periods. At PBAPS, repairs and replacements of several hydrants, fire pumps, and indoor piping have been required due to internal corrosion and wear. The presence of corrosion, silting, and clams have been noted during plant work order inspections. Modifications and work orders have repaired and replaced degraded fire barrier penetrations and fire barrier doors. Corrective actions were implemented prior to loss of system or barrier functions. The diesel driven fire pump fuel oil system has experienced minor leakage events that were detected and corrected in a timely manner. There have been no age related component failures resulting in a loss of function for the components covered by this aging management activity.

SUMMARY

The fire protection activities provide for inspections, monitoring, and performance testing of fire protection systems and components to detect aging effects prior to loss of intended function. Degradation of fire protection systems and components due to corrosion buildup, biofouling, and silting are detected by performance testing based on NFPA 24 standards. Periodic and maintenance inspections detect corrosion, fouling, and cracking in system components due to internal and external environment aging effects, and detect aging effects in fire barriers. Periodic wall thickness evaluations will detect loss of material aging effects to ensure against catastrophic fire protection system piping failure. Monitoring of system pressure detects system leakage due to both internal and external aging effects.

Based on industry and PBAPS experience, there is reasonable assurance that the fire protection activities as enhanced will adequately manage the internal and external environment aging effects on the fire protection system components and barriers so that the intended functions are maintained consistent with the current licensing basis for the period of extended operation.

REFERENCES

(1) NFPA 24, "Standard for Outside Protection", 1970

ATTACHMENT 2

Exelon Generation Company, LLC (Exelon)
License Renewal Application (LRA)
Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3

Supplemental Request for Additional Information

RAI 3.3-4 Supplemental Request for Information

In order to complete the review of the aging management review results, additional information is required regarding:

1) Information that supports the exclusion of loss of material aging effect for carbon steel piping in an outdoor environment for the emergency diesel generators as shown on page 3-110 in the License Renewal Application (LRA) and for the fire protection system as shown on page 3-80 of the LRA.
2) Aging management review results for component groups for the emergency diesel generators for carbon steel piping in a wetted gas environment.

Response:

1) Loss of Material Aging Management: Outdoor Exhaust Piping

The Emergency Diesel Generators (EDGs) and Fire Protection Diesel Driven Pump have their exhaust piping routed outdoors to safely emit the exhaust gases outside of the buildings. The pressure boundary integrity of the exhaust piping is critical for the indoor routings; however, once the exhaust piping penetrates the roof slabs, the pressure boundary integrity of the exhaust piping is not considered critical. Through-wall corrosion of the outdoor exhaust piping will not impact the operability or availability of the EDGs or the Diesel Driven Fire Pump since exhaust gas flow through pipe-wall breaches is still safely emitted outside the buildings.

2) Carbon steel piping in a wetted gas environment was inadvertently omitted from LRA Table 3.3-16. The aging management review of Emergency Diesel Generator system carbon steel piping in a wetted gas environment identifies loss of material aging effect. The applicable aging management activity is the Emergency Diesel Generator Inspection activity (LRA Appendix B.2.4). A line item has been added to LRA Table 3.3-16 (LRA Page 3-110) as shown below.

Component Group	Component Intended Function	Environment	Materials of Construction	Aging Effect	Aging Management Activity
Piping • Tubing	• Pressure Boundary	Lubricating and Fuel Oil	Copper, Copper Alloys	Loss of Material	• Oil Quality Testing (B.2.1) • Emergency Diesel Generator Inspection (B.2.4)
Piping • Tubing	• Pressure Boundary	Lubricating and Fuel Oil	Stainless Steel	Cracking	• Emergency Diesel Generator Inspection (B.2.4)
Piping • Tubing	• Pressure Boundary	Lubricating and Fuel Oil	Stainless Steel	Loss of Material	• Oil Quality Testing (B.2.1) • Emergency Diesel Generator Inspection (B.2.4)
Piping • Pipe	• Pressure Boundary	Outdoor	Carbon Steel	None	• Not Applicable
Piping • Pipe • Tubing • Fittings	• Pressure Boundary	Sheltered	Carbon Steel, Stainless Steel, Brass Alloys, Copper Alloys	None	• Not Applicable
Piping • Pipe	• Pressure Boundary	Wetted Gas	Stainless Steel	Loss of Material	• Emergency Diesel Generator Inspection (B.2.4)
Piping *• Pipe*	*• Pressure Boundary*	*Wetted Gas*	*Carbon Steel*	*Loss of Material*	*• Emergency Diesel Generator Inspection (B.2.4)*
Piping Specialties • Thermowells	• Pressure Boundary	Closed Cooling Water	Brass	Loss of Material	• CCW Chemistry (B.1.3)
Piping Specialties • Thermocouple Cap	• Pressure Boundary	Closed Cooling Water	Brass	Loss of Material	• CCW Chemistry (B.1.3)

ATTACHMENT 3

Exelon Generation Company, LLC (Exelon)
License Renewal Application (LRA)
Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3

Supplemental Request for Additional Information

RAI 2.5-1 Supplemental Request for Information

In order to complete the review of the Station Blackout System (SBO) scoping and screening results, additional information is required regarding:

1) A detailed description of the Peach Bottom Atomic Power Station (PBAPS) recovery path for offsite power from its power sources to the 4 KV emergency busses.
2) A complete and comprehensive table displaying aging management review results for electrical structures, systems, and components (SSC) identified in 1) above.
3) The rationale as to why no aging effect is identified on the table provided in response to 2) above, including consideration of operating experience review results.

Response:

1) The offsite power system consists of three independent power sources and their associated structures and components, which allow for power to be provided to the 4 KV emergency busses via the Substation and 13 KV Systems. The power sources come from the North Substation and vicinity that is situated on a hill behind PBAPS. These power paths can be seen on license renewal drawing LR-E-1, with the exception of the #220-34 and the #1 autotransformer sources with their associated in-line load interrupter switch or disconnect switch. Additionally, the #220-08 line disconnect switch is not shown.

   One power source is an overhead 230 KV transmission line (Graceton-Nottingham line #220-08) that brings power into the protected area boundary (PAB) via a transmission tower. The power line is then transitioned from the transmission tower to an outdoor substation bus bar structure, continuing to an in-line disconnect switch, through a 230 KV circuit breaker, and then connects to the 230/13.8 KV #2 startup and emergency auxiliary transformer. The 13.8 KV side of the transformer is then connected to the #2SU startup transformer switchgear bus via non-segregated bus duct. The 13 KV system is then connected to the 13.2/4 KV #2 emergency auxiliary transformer via an underground duct bank, routing through manholes where required. The 4 KV side of the transformer is connected to the 4 KV emergency bus and switchgear via an underground ductbank into the plant.

   The second source is an overhead/underground 230 KV transmission line (Peach Bottom-Newlinville line #220-34) entering the North Substation and transitioning to an outdoor substation bus bar structure. It then goes through a 230 KV load interrupter switch and connects to the 230/13.8 KV #343 startup transformer. From the 13.8 KV side of the transformer, it goes through a 13 KV circuit breaker, through an in-line disconnect switch to another substation bus bar structure, and then transitions into an underground trench to the back on the substation. It then transitions via a substation bus bar structure to an overhead line which goes down the hill into the PAB of the plant. The overhead line transitions to another substation bus bar structure, and then the line transitions to underground ductbank, routing through manholes as required, into the

#343 Startup Switchgear Building and associated Switchgear. The 13 KV line is then transitioned to the 13.2/4 KV #3 emergency auxiliary transformer via an underground ductbank, routing through manholes as required. The 4 KV side of the transformer is connected to the 4 KV emergency bus and switchgear via an underground ductbank into the plant.

The third source is a 13.8 KV source tapped off from the tertiary winding of the #1 autotransformer. From the tertiary winding the feed goes through a substation bus bar structure to an in-line disconnect switch, and through a 13.8 KV circuit breaker to the #3 startup and emergency auxiliary regulating transformer. The feed then transitions to another substation bus bar structure, and then underground via buried trench to a manhole at the back of the substation. From the manhole, the feed transitions via an outdoor cable tray to another manhole (MH037) just outside the PAB. From there it transitions via underground ductbank to the #3 SU regulating switchgear building and associated switchgear. The 13 KV feed transitions via ductbank into the plant where it connects to the 13 KV unit auxiliary buses, and switchgear. Additionally, there is a 13 KV aerial tie between the switchgear in the #3 SU regulation switchgear building and the #343 SU transformer switchgear building.

Each offsite source can be used to supply the unit auxiliary buses for plant startup and shutdown. The offsite power system is discussed in UFSAR Section 8.0.

All medium voltage cables, with the exception of the cable from manhole MH037 to the #3 SU regulating switchgear building, in the above described power paths which may have been susceptible to water-treeing have been replaced as discussed in our response to RAI 3.6-1.

Power cables from the offsite sources are run separately from any associated control or instrument cables.

The control and instrument cables are installed in trenches constructed of bar sand or stone screenings both above and below the cables, with treated planking above the covered cables. This allows the cables within the trench to see normal "rain and drain" moisture and not standing water; therefore, they are not susceptible to water treeing. Also, as stated in table 4-18, page 4-81, of SAND96-0344 "Aging Management Guideline for Commercial Nuclear Power Plants – Electrical Cable and Terminations," September,1996, moisture is not included as an applicable stressor for low voltage cable insulation. SAND96-0344 in section 3.7.4, pages 3-46 and 3-47, reports the results of an EPRI study, EPRI TR-103834-PI-2, "Effects of Moisture on the Life of Power Plant Cables," which states "...moisture-related failures for low voltage cable are not occurring...(and).. The overall conclusion of the study was that moisture-related degradation is not a significant concern for general applications. " Additionally, these cables do not experience service temperature or radiation values above the 60-year bounding values, and therefore do not require aging management.

The components which are the starting points of the offsite power system for the purpose of license renewal, under control of the PBAPS Appendix B program, are the in-line disconnect and load interrupter switches as described above.

2) The electrical components comprising the offsite power system were reviewed and the passive, long-lived components subject to an aging management review were identified to be the following:

- Switchyard bus
- High-voltage insulators
- Insulated cables and connections (connectors, splices, terminal blocks)
- Phase bus (Non-segregated-phase bus)
- Transmission Conductors

The intended electrical function of the offsite power system within the scope of license renewal is to provide "recovery" power after a SBO event.

The aging management review results for the above electrical components are shown in Table 1 below.

Table 1 Aging Management Review Results for the Offsite Power System Electrical Components

Component Group	Component Intended Function	Environment	Materials of Construction	Aging Effect	Aging Management Activity
Switchyard Bus	• Electrical Continuity	Outdoor	Aluminum	None (1)	• Not Applicable
High Voltage Insulators	• Insulate	Outdoor	Porcelain	None (2)	• Not Applicable
Insulated Cables and Connections	• Electrical Continuity	Sheltered	Polymer Insulation	None (3) (8)	• Not Applicable
Insulated Cables and Connections	• Electrical Continuity	Outdoor	Polymer Insulation	None (4) (8)	• Not Applicable
Insulated Cables and Connections	• Electrical Continuity	Buried	Polymer Insulation	None (5) (8)	• Not Applicable
Phase Bus (non segregated)	• Electrical Continuity	Sheltered	Aluminum	None (6)	• Not Applicable
Transmission Conductors	• Electrical Continuity	Outdoor	Aluminum	None (7)	• Not Applicable

3) The rationale for no aging effect is provided by the following footnotes to Table 1:

(1) Pure aluminum exposed to air may be susceptible to oxidation at connection points. However, no-oxide grease, a consumable, which is replaced as required during routine maintenance, prohibits oxidation. Therefore, no aging effects are observable or applicable.

(2) Porcelain insulators were assessed for aging effects due to cracking, loss of material due to wear, and surface contamination. Cracking (known as cement growth) is caused by improper manufacturing and is not an applicable aging effect. Loss of material due to mechanical wear is an aging effect due to movement of the insulators by wind blowing on the conductor and causing the insulator to move. Although this mechanism is possible, experience has shown that transmission conductors do not swing for very long once the wind has subsided. Therefore, this is not an applicable "significant and observable" aging effect. Surface contamination can be a problem in areas where there are great concentrations of airborne particles, such as near facilities that discharge soot, or near the sea where salt spray is prevalent. The substation is in an area where airborne particle concentrations are comparatively low. Consequently, the contamination buildup on the insulators is insignificant, and therefore surface contamination is not an applicable aging effect. Therefore, no aging management activity is required for the bus bar and power line insulators.

(3) A sheltered environment is defined on page 3-6 of the LRA. A sheltered environment consists of indoor ambient conditions where components are protected from outdoor moisture. Cables and connections associated with the SBO system and Offsite Power are not within the drywell and steam tunnel. These cables see temperatures of less than 105°F and humidity of between 10% and 90%. Radiation values in this environment are less than 2.0E+06 within the plant, and normal background radiation external to the plant. There are no aging effects for cables and connections in this environment that require management.

(4) An outdoor environment is defined on page 3-7 of the LRA. An outdoor environment consists of air temperatures typically ranging from 0°F to 100°F, and an average annual precipitation of approximately 30 inches. Radiation levels are those of normal background. There are no aging effects for cables and connections in this environment.

(5) A buried environment is defined on page 3-7 of the LRA. The buried environment consists of granular bedding material of sand or rock fines, backfill of dirt or rock, and filler material of gravel or crushed stone. A buried environment may include such items as ductbanks and conduits. Direct buried cables exist in the substation. The cables are installed in a trench constructed of bar sand or stone screenings both above and below the cables, with treated planking above the covered cables. This allows the cables within the trench to see normal "rain and drain" moisture and not standing water; therefore, they are not susceptible to water treeing. With the exception of an oil fire several years ago in the substation, which is an event driven situation, a review of PBAPS

operating history indicates that PBAPS has not experienced any age-related degradation for the cables buried in the trench.

(6) The non-segregated bus associated with the offsite power is in a sheltered environment and has no aging effects. The non-segregated bus duct that transitions from the #2SU Startup and Emergency Auxiliary Transformer into the #2 SU Start-up Switchgear Building is in an outdoor environment, discussed in structures, and is inspected within the Maintenance Rule Structural Monitoring Program.

(7) The overhead conductor is Aluminum Conductor Steel Reinforced (ACSR). Corrosion of ACSR is a very slow acting aging effect that is even slower for rural areas such as PBAPS with generally less suspended particles and SO_2 concentration in the air than urban areas. Therefore, there are no applicable aging effects that require management.

(8) As described in our response to question 11 that was transmitted by letter from Michael P. Gallagher (Exelon) to NRC Document Control Desk dated January 2, 2002, these cables were reviewed only for the aging effects of temperature, radiation, and moisture. The aging effects of corrosion, vibration, mechanical manipulation, and contamination were considered not to be significant and observable, and therefore not applicable aging effects for PBAPS.

ATTACHMENT 4

Exelon Generation Company, LLC (Exelon)
License Renewal Application (LRA)
Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3

Supplemental Request for Additional Information

RAI 3.3-11 Supplemental Request for Information

In order to complete the review of the aging management review results of bronze valve bodies in an outdoor environment, additional information is required regarding the function these valves provide in the fire protection system.

Response:

These valves are 2.5-inch angle valves for fire hose connection. These valves are normally closed and capped and are located outside the pump structure building. The external surfaces of the valves are exposed to an outdoor environment that does not result in an aging effect requiring aging management as shown on LRA page 3-77. The internal surfaces of the valves are exposed to a raw water environment that results in a loss of material aging effect that is managed by aging management activity B.2.9, "Fire Protection Activities".