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10CFR54

May 22, 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 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

Reference: Letter from R. K. Anand (USNRC) to M. P. Gallagher (Exelon), dated March 12, 2002

Dear Sir/Madam:

Exelon Generation Company, LLC (Exelon) hereby submits the enclosed responses to the request for additional information transmitted in the reference letter. For your convenience, Attachment 1 restates the questions from the reference letter and provides our responses.

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 5-23-02 Michael P. Gallagher

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

Enclosures: Attachment 1

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

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ATTACHMENT 1

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

**Request for Additional Information**

**Structures and Components Subject to Aging Management Review (Section 2.0)**

**RAI 2.0-1.** The component groups identified in Tables 2.3.x, 2.4.x, and 2.5.x do not clearly identify the structures and components that are considered to be within the scope of license renewal and subject to an AMR. These tables identify components as commodity groups (i.e., castings and forgings). The staff is trying to understand how the commodity groups were developed and if the conventions are consistently applied in the application (e.g., section 3.0, page 3-3, identifies "examples" of component groups, however, items identified as piping specialities could also be made by casting and forging). To this end, please explain how the categories of component groups listed in the various tables were developed.

**Response:**

Since there was no NRC approved guidance available for how components are grouped at the time that the PBAPS integrated plant assessment was performed, PBAPS developed a listing of component groups so as to be consistent in its application. The intent of the grouping was to include similar types of components within each group. These component groups were developed and defined in the LRA Section 3.0, page 3.3. We acknowledge that some piping specialties group components could also be made from castings or forgings; therefore, it was decided to include these kinds of components like flow elements, reducing orifices, etc. in the piping specialties group.

Mechanical component groups were established based in part on the following six groups identified in Electric Power Research Institute (EPRI) TR 114882, Non-Class 1 Mechanical Implementation Guideline and Mechanical Tools, section 2.2 (List of Mechanical Components Subject to AMR).

- Heat Exchangers
- Tanks/ Vessels
- Pumps
- Valves
- Piping, tubing, fittings and Branch connections
- Miscellaneous Process components

PBAPS aging management reviews modified the EPRI mechanical component groups and defined aging management review mechanical component groups as follows:

- Casting & Forging Group (non-piping)
    - Valve bodies
    - Pump casings
    - Turbine casing
    - Strainer bodies & screens
    - Filter bodies
    - Hydrants
- Heat Exchanger group
    - Heat exchangers
    - Heaters
    - Coolers
    - Condensers
- Elastomer Group
    - Flex hoses
    - Access door seals
- Piping Group
    - Piping, tubing, and fittings
    - Tailpipe
    - fittings are considered with piping or tubing when made of the same material
- Piping Specialties Group
    - Restricting Orifices
    - Flow Elements
    - Condensing Chambers
    - Thermo wells
    - Steam traps
    - Rupture discs
    - Spargers
    - Suction strainers
    - Cyclone Separators
    - Y-strainer body & screen
    - Vaporizers
    - Pressure elements
    - Temperature element coupling
    - Vacuum breaker
    - Expansion joints
    - Metal flex connectors
    - Flexible hose
    - Thermocouple cap
    - Expansion joints
    - Drain Traps
    - Dash Pots
    - Condensing Chambers
- Sheet Metal Group
    - Louvers
    - Plenums
    - Ducts
    - Enclosures
    - Screens

- Vessel Group
    - Tanks
    - Accumulators
    - Air Receivers
    - Mufflers
    - Silencers
    - Detection Chambers
- Cranes & Hoists
    - Rails
    - Rail clips & bolts

Structural component groups were established based in part on the considerations noted in EPRI TR 114881 (Structural Tools). PBAPS aging management reviews supplemented the EPRI structural groups and defined aging management review of structural component groups as follows:

- Reinforced Concrete:
    - Walls
    - Slabs
    - Beams
    - Columns
    - Foundations
    - Pedestals
    - Curbs
    - Dikes
- Unreinforced Concrete
- Prestressed Concrete
- Reinforced Concrete Block
- Reinforced Concrete Embedments
- Structural Steel:
    - Barriers
    - Restraints
    - Panels
    - Roof Deck
    - Siding
    - Gates
- Component Supports:
    - Bolts and anchors
    - Lubrite Plates
    - Grout
- Insulation
- Electrical & Instrumentation Enclosures & Raceways
- Expansion Bellows
- Metal Siding and roof deck
- Blowout panels
- Hazard Barriers:
    - Penetration Seals
    - Doors

    - Fire Wrap
    - Elastomers
- Drywell components
    - Shell
    - Head
    - Hatch
    - Penetrations
    - Gaskets
    - Girders
- Pressure Suppression
    - Supports
    - Restraints
    - Plates
    - Hatches
- Vent Systems
    - Bracing
    - Vent Lines
    - Shields
    - Plates
    - Stabilizer
- Elastomer
    - Seals
    - Barrier
- Miscellaneous Steel
    - Platforms
    - Stairs
    - Grating
    - Ladders
    - Curbs
    - Handrails
    - Kick Plates
    - Tubing Trays
    - Manhole covers

Electrical component groups were established based in part on the considerations noted in SAND 96-0344 "Aging Management Guidelines for Commercial Nuclear Power Plants - Electrical Cable and Terminations". PBAPS aging management reviews defined aging management review of electrical component groups as follows:

- Cables
- Connectors, terminations and terminal blocks

Thus, as Aging Management reviews were performed, these component groupings were consistently followed, so the tables in LRA sections 2.3.x, 2.4.x, and 2.5.x should reflect this consistent treatment of like components within systems and structures.

**Mechanical System Scoping Results (Table 2.2-1)**

**RAI 2.2-1.1(a)** Table 2.2-1, "Mechanical System Scoping Results," states that the systems identified below are out-of-scope, but specific components of these systems have been realigned to other systems for the purposes of license renewal.

- Drywell Ventilation System
- Primary Containment Leak Test System
- Reactor Building Ventilation System
- Reactor Building Closed Cooling Water System
- Reactor Water Cleanup System
- Chilled Water System
- Instrument Nitrogen System
- Instrument Air System
- Service Air System
- Plant Equipment and Floor Drain System
- Process Sampling System
- Torus Water Cleanup system
- Post Accident Sampling System
- Traversing In-Core Probe System

– Provide a brief description of each of these out-of-scope systems whose components are realigned to be in scope.

– Provide a textual description of the types of components realigned in each of the above listed systems.

– Provide details regarding the intended function(s) for each realigned component in the context of license renewal.

– State how the realigned components meet the criteria of 10 CFR 54.4(a)(1), (2), or (3).

– Components realigned to within-scope systems must be identifiable and traceable to the out-of-scope systems. Provide a method for identifying those components from out-of-scope systems within the various tables, that are within the scope of license renewal, as realigned to in-scope systems.

**Response:**

Exelon has provided the information requested in this RAI based upon the PBAPS License Renewal Application submitted on July 2, 2001. As a result of providing the information requested by RAI 2.1.2-3, RAI 2.1.2-4, and RAI 3.3-1 which address scoping under 10CFR54.4(a)(2), the Reactor Building Closed Cooling Water System, Reactor Water Cleanup System, Chilled Water System, Plant Equipment and Floor Drain System, Process Sampling System and Torus Water Cleanup System originally determined as out-of-scope of license renewal are now determined to be in-scope for license renewal. Please refer to the response to RAI 2.1.2-3, RAI 2.1.2-4, and RAI 3.3-1 for additional information.

**Drywell Ventilation System**

**System Description**

The Drywell Ventilation System is a non-safety-related auxiliary mechanical system for PBAPS, Units 2 and 3. The Drywell Ventilation System removes heat from the Drywell during normal plant operations, and is designed to limit the Drywell bulk average temperature during normal operation to 145° F. The system is designed with a latent heat removal capability of 0.5 GPM of moisture from air.

The Drywell Ventilation System consists of seven unit coolers, two recirculation fan units, and associated ducting and instrumentation. Each unit cooler contains two redundant cooling coils and two redundant fans. One fan in each Drywell unit cooler is normally operating, with the second fan on standby. The standby fan starts automatically when low differential pressure is sensed in the supply plenum between the cooling coils and the fans. The seven unit coolers and recirculation fan units are located inside the drywell.

The Drywell Ventilation System also includes purge supply fans and associated ducting, used to supply filtered and tempered outdoor air to the drywell for purge and ventilation purposes, to allow personnel access and occupancy during reactor shutdown and refueling. This purge supply portion of the system is located outside the drywell, and is independent from and not physically connected to the cooling and recirculation portion of the system described above.

Reference UFSAR Section 5.2.3.7.2.

**Description of Realigned Components**

The drywell purge supply ducting passes through the secondary containment boundary and includes inner and outer secondary containment isolation valves. These valves, associated control switches and interconnecting ducting required for secondary containment integrity are safety-related and are included in the scope of license renewal. These components were realigned from the Drywell Ventilation System to the Secondary Containment System. The Secondary Containment System is described in LRA Section 2.3.2.8, and the realigned valves and ducting are addressed in LRA Table 2.3.2-8.

The Drywell Ventilation System includes instrumentation for monitoring the drywell area temperature. This non-safety-related temperature monitoring instrumentation is credited for operator monitoring functions during certain Appendix R Fire scenarios and is included in the scope of license renewal. This temperature monitoring instrumentation was realigned from the Drywell Ventilation System to the Fire Safe Shutdown system. The Fire Safe Shutdown system is considered an electrical system and is not described in the LRA. The cables associated with this in-scope instrumentation, as for all cables in the scope of license renewal, are reviewed using the "spaces" approach, and are addressed in LRA Table 2.5-1.

**Component Intended Functions**

The Drywell Ventilation System is not a safety-related system and does not have any safety-related system intended functions. The Drywell Ventilation System components associated with

the secondary containment boundary are safety-related for the secondary containment boundary intended function. The Secondary Containment System (LRA Section 2.3.2.8) includes the system intended function of "Containment" and therefore these secondary containment components are realigned from the Drywell Ventilation System to the Secondary Containment System.

A small number of selected temperature monitoring instruments in the Drywell Ventilation System are credited for plant monitoring during certain Appendix R fire scenarios. These instruments are identified in the plant fire safe shutdown analysis and are realigned from the Drywell Ventilation System to the Fire Safe Shutdown System.

The realigned valves and ductwork have component intended functions of "Pressure Boundary" to support the system intended function of "Containment." The realigned control switches and instruments are active for license renewal, and therefore do not have a license renewal component intended function defined.

**Scoping Criteria**

The realigned components associated with the secondary containment boundary are safety-related and are in the scope of license renewal under the 10 CFR 54.4(a)(1) criteria. The realigned drywell temperature monitoring instruments are in the scope of license renewal under the 10 CFR 54.4(a)(3) criteria.

**Primary Containment Leak Test System**

**System Description**

The Primary Containment Leak Test System is designed to provide the ability to test the leakage of the Primary Containment structure, including containment penetrations, hatches, airlocks, and containment isolation valves to verify that the leakage is within specified limits as required by 10CFR50 Appendix J, Option B.

The Primary Containment Leak Test System consists of an Integrated Leak Rate Testing (ILRT) System for performing 10CFR50 Appendix J, Option B type "A" tests, and containment penetration test connections installed on electrical containment penetrations, personnel equipment airlock, containment hatches and the Drywell head seal for performing type "B" tests. The system also includes local leak rate test monitor equipment to verify containment penetrations and containment isolation valve leakage for performance of type "C" testing. Leakage test types are as defined in 10CFR50, Appendix J, Option B.

The ILRT system consists of an ILRT data acquisition portable console, piping and valving connected to containment penetrations, and temperature and moisture sensing elements. Since the ILRT is performed on a periodic basis during shutdowns, only the test connections on the containment penetrations, personnel equipment, containment hatches, and airlock are permanently installed. The remaining components are stored when not in use.

Containment penetration test connections are installed on those electrical containment penetrations, hatches, and the airlock whose design utilizes seals or gaskets, to periodically pressurize these penetrations with compressed air for type "B" testing.

**Description of Realigned Components**

The system includes a number of test connection valves that are safety-related and are part of the primary containment boundary. These valves and associated pipe segments required for primary containment integrity are safety-related and are included in the scope of license renewal. These components were realigned from the Primary Containment Leak Test System to the Primary Containment Isolation System. The Primary Containment Isolation System is described in LRA Section 2.3.2.3, and the realigned valves and piping are addressed in LRA Table 2.3.2-3.

**Component Intended Functions**

The Primary Containment Leak Test System is not a safety-related system and does not have any safety-related system intended functions. The Primary Containment Leak Test System components associated with the primary containment boundary are safety-related for the containment boundary intended function. The Primary Containment Isolation System (LRA Section 2.3.2.3) includes the system intended function of "Primary Containment Isolation" and therefore these primary containment components are realigned from the Primary Containment Leak Test System to the Primary Containment Isolation System.

**Scoping Criteria**

The realigned components associated with the primary containment boundary are safety-related and are in the scope of license renewal under the 10 CFR 54.4(a)(1) criteria.

**Reactor Building Ventilation System**

**System Description**

The reactor building is separated into two ventilation areas, the area above the refueling floor and the area below the refueling floor. Each area is provided with ventilation supply and exhaust systems. The system employs once-through ventilation without recirculation. Exhaust air is discharged to atmosphere through the ventilation stack at the reactor building roof.

The refueling floor zone ventilation system is normally served by two half-capacity supply and two half-capacity exhaust fans. The ventilation system supplies filtered and tempered outdoor air from one side of the refueling floor and exhausts from the opposite wall and roof of the area. Ventilation slots are provided at water level in the fuel pool, reactor cavity, and steam dryer-separator storage pool side walls for exhausting radioactive particulates that might become airborne.

The reactor building area below the refueling floor is provided with a ventilation supply system, an area ventilation exhaust system, and an equipment compartment exhaust system. Filtered

and tempered outdoor air is routed from areas of lesser to areas of potentially greater contamination prior to exhaust. The ventilation exhaust from contaminated equipment compartments and tank vents is passed through a high-efficiency filter system prior to release to the ventilation stack.

The core standby cooling (HPCI, RCIC, RHR and Core Spray) pump compartments in the lower elevations of the reactor building are normally ventilated by the reactor building ventilation system. Supplementary cooling is provided by fan-coil units installed in the pump rooms when the core cooling pumps are running. Each pump room is provided with two fan-coil units. Each cooler by itself can remove 100% of the required room heat load. One is maintained operational, and one is provided as an installed spare. The cooling coil of the operational unit is served by the emergency service water system and the power supply to the associated fan is provided from the standby power supply during loss of offsite power. The spare cooler is normally isolated mechanically and electrically.

Allowable temperatures in the HPCI and RCIC pump compartments have been established to permit HPCI and RCIC operability without operation of normal or supplementary room cooling.

Reference UFSAR Section 5.3.2.

**Description of Realigned Components**

Reactor Building Ventilation System ducting passes through the secondary containment boundary and includes inner and outer secondary containment isolation valves. These valves and interconnecting ducting required for secondary containment integrity are safety-related and are included in the scope of license renewal. These components were realigned from the Reactor Building Ventilation System to the Secondary Containment System. The Secondary Containment System is described in LRA Section 2.3.2.8, and the realigned valves and ducting are addressed in LRA Table 2.3.2-8.

Reactor Building Ventilation System interfaces with the Standby Gas Treatment system, and portions of the Reactor Building Ventilation System ducting are also used by the Standby Gas Treatment System. The Reactor Building Ventilation System valves, dampers, and interconnecting ducting required to support the Standby Gas Treatment System function are safety-related and are included in the scope of license renewal. These components were realigned from the Reactor Building Ventilation System to the Standby Gas Treatment System. The Standby Gas Treatment System is described in LRA Section 2.3.2.7, and the realigned valves, dampers and ducting are addressed in LRA Table 2.3.2-7.

The coolers in the Residual Heat Removal pump rooms, Core Spray pump rooms, High Pressure Coolant Injection pump room and Reactor Core Isolation Cooling pump room are stand-alone coolers cooled by the Emergency Service Water system. These coolers support the intended functions of the Residual Heat Removal system, Core Spray system, High Pressure Coolant Injection system and Reactor Core Isolation Cooling system by providing room cooling to maintain the room environment within the parameters for equipment operability. These coolers are safety-related and are included in the scope of license renewal. These coolers were realigned from the Reactor Building Ventilation System to the Residual Heat Removal system, Core Spray system, High Pressure Coolant Injection system or Reactor Core Isolation Cooling system as appropriate. These systems are described in LRA Section 2.3.2.5,

2.3.2.2, 2.3.2.1 and 2.3.2.4 respectively, and the realigned cooler components are addressed in LRA Tables 2.3.2-5, 2.3.2-2, 2.3.2-1, and 2.3.2-4.

**Component Intended Functions**

The Reactor Building Ventilation System is not a safety-related system and does not have any safety-related system intended functions. The Reactor Building Ventilation System components associated with the secondary containment boundary are safety-related for the secondary containment boundary intended function. The Secondary Containment System (LRA Section 2.3.2.8) includes the system intended function of "Containment" and therefore these secondary containment components are realigned from the Reactor Building Ventilation System to the Secondary Containment System.

The Reactor Building Ventilation System includes components (valves, dampers and interconnecting ducting) that interface with the Standby Gas Treatment System. These components are safety-related to support the Standby Gas Treatment System intended function. These components are required to maintain the Standby Gas Treatment System pressure boundary, so the component intended function is to maintain pressure boundary. The Standby Gas Treatment System is described in LRA Section 2.3.2.7. The interfacing pressure boundary components are realigned from the Reactor Building Ventilation System to the Standby Gas Treatment System.

The room coolers in the Residual Heat Removal pump rooms, Core Spray pump rooms, High Pressure Coolant Injection pump room and Reactor Core Isolation Cooling pump room are required to support the individual system functions by maintaining an adequate room environment to support equipment operability. This is a supporting function that supports all of the individual system intended functions.

**Scoping Criteria**

The realigned components are safety-related and are in the scope of license renewal under the 10 CFR 54.4(a)(1) criteria.

**Reactor Building Closed Cooling Water System**

Exelon has provided the information requested in this RAI based upon the PBAPS License Renewal Application submitted on July 2, 2001. As a result of providing the information requested by RAI 2.1.2-3, RAI 2.1.2-4, and RAI 3.3-1, the Reactor Building Closed Cooling Water System which was originally determined to be out-of-scope of license renewal has now been determined to be in-scope for license renewal. Please refer to the response to RAI 2.1.2-3, RAI 2.1.2-4, and RAI 3.3-1 for additional information.

**System Description**

The reactor building cooling water system consists of two full-capacity pumps, two full-capacity heat exchangers, one head tank, one chemical feed tank, and associated piping, valves, and

controls. The cooling water pumps and heat exchangers are located in the reactor building auxiliary bay. The head tank is located on the reactor building refueling floor.

The system is a closed loop utilizing inhibited demineralized water. The heat exchangers are designed with service (river) water on the tube side and demineralized water on the shell side. The reactor building cooling water system is designed for an operating pressure of 140 psig.

The head tank, located at the highest point in the loop, accommodates system volume changes, maintains static suction pressure on the pump, aids in detecting gross leaks in the reactor building cooling water system, and provides for adding makeup water. An automatic makeup control valve maintains water level in the tank. The automatic function is not required and may be valved out to monitor system inventory. High and low water levels are alarmed in the main control room. An inhibitor is added as necessary to the demineralized water by means of a chemical addition tank to limit corrosion.

The reactor building cooling water system supply and return headers penetrating the primary containment are each provided with a motor-operated isolation valve outside the containment. These isolation valves are manually controlled remotely from the main control room.

Electrical power for operating the reactor building cooling water system pumps during failure of offsite power is supplied from the standby power supply.

Reference UFSAR Section 10.8.3.

**Description of Realigned Components**

The reactor building closed cooling water system piping passes through the primary containment boundary and includes inboard and outboard primary containment isolation valves. These valves, associated control switches and interconnecting piping required for primary containment integrity are safety-related and are included in the scope of license renewal. These components were realigned from the Reactor Building Closed Cooling Water System to the Primary Containment Isolation System. The Primary Containment Isolation System is described in LRA Section 2.3.2.3, and the realigned valves and piping are addressed in LRA Table 2.3.2-3.

**Component Intended Functions**

The Reactor Building Closed Cooling Water System is not a safety-related system and does not have any safety-related system intended functions. The Reactor Building Closed Cooling Water System components associated with the primary containment boundary are safety-related for the containment boundary intended function. The Primary Containment Isolation System (LRA Section 2.3.2.3) includes the system intended function of "Primary Containment Isolation" and therefore these primary containment components are realigned from the Reactor Building Closed Cooling Water System to the Primary Containment Isolation System.

**Scoping Criteria**

The realigned components associated with the primary containment boundary are safety-related and are in the scope of license renewal under the 10 CFR 54.4(a)(1) criteria.

**Reactor Water Cleanup System**

Exelon has provided the information requested in this RAI based upon the PBAPS License Renewal Application submitted on July 2, 2001. As a result of providing the information requested by RAI 2.1.2-3, RAI 2.1.2-4, and RAI 3.3-1, the Reactor Water Cleanup System which was originally determined to be out-of-scope of license renewal has now been determined to be in-scope for license renewal. Please refer to the response to RAI 2.1.2-3, RAI 2.1.2-4, and RAI 3.3-1 for additional information.

**System Description**

The Reactor Water Cleanup System provides continuous purification of a portion of the reactor recirculation flow. The processed fluid is returned to the reactor recirculation system or to radwaste or to condensate storage tanks. Regenerative heat exchangers are provided to minimize heat loss from the nuclear system. The system can be operated at any time during planned operations.

The major equipment of the Reactor Water Cleanup System is located in the reactor building and consists of two 100% capacity pumps, one three-shell regenerative and two two-shell non-regenerative heat exchangers and two filter-demineralizers with supporting equipment. The entire system is connected by associated valves and piping, and controls and instrumentation are provided for proper system operation.

Reactor coolant is normally removed from the reactor coolant recirculation system and/or reactor vessel bottom head drain, cooled in the regenerative and non-regenerative heat exchangers, filtered and demineralized, and returned to the feedwater system through the shell side of the regenerative heat exchanger.

Reference UFSAR Section 4.9.3.

**Description of Realigned Components**

The Reactor Water Cleanup System piping passes through the primary containment boundary and connects with the reactor coolant pressure boundary at the reactor bottom head and also at the reactor recirculation system. The Reactor Water Cleanup System includes inboard and outboard primary containment isolation valves. These valves, associated control switches, flow elements, expansion joints and interconnecting piping required for primary containment integrity are safety-related and are included in the scope of license renewal. In addition, the Reactor Water Cleanup System includes safety-related leak detection instrumentation that passes through the primary containment boundary. This instrumentation, including the piping, tubing, restricting orifices and instrument valves, is included in the scope of license renewal. These components were realigned from the Reactor Water Cleanup System to the Primary Containment Isolation System. The Primary Containment Isolation System is described in LRA Section 2.3.2.3, and the realigned valves, piping and tubing are addressed in LRA Table 2.3.2-3. The expansion joints are addressed in LRA Table 2.4-1 as part of the Drywell Penetrations.

The Reactor Water Cleanup System piping and valves inside containment that are part of the reactor coolant pressure boundary were realigned from the Reactor Water Cleanup System to the Reactor Recirculation System. The Reactor Recirculation System is described in LRA

Section 2.3.1.4, and the realigned valves and piping are addressed in LRA Table 2.3.1-4.

The Reactor Water Cleanup System pipe supports inside containment were realigned from the Reactor Water Cleanup System to the Reactor Recirculation System. The realigned pipe supports are addressed in the license renewal application with Component Supports in Section 2.4.13, and are included in LRA Table 2.4-13.

**Component Intended Functions**

The Reactor Water Cleanup System is not a safety-related system and does not have any safety-related system intended functions. The Reactor Water Cleanup System components associated with the primary containment boundary are safety-related for the containment boundary intended function. The Primary Containment Isolation System (LRA Section 2.3.2.3) includes the system intended function of "Primary Containment Isolation" and therefore these primary containment components are realigned from the Reactor Water Cleanup System to the Primary Containment Isolation System.

The Reactor Water Cleanup System piping and valves located inside containment and associated with the reactor coolant pressure boundary are safety-related for the reactor coolant pressure boundary intended function. The Reactor Recirculation System (LRA Section 2.3.1.4) includes the system intended function of "Pressure Boundary," which is described as reactor coolant pressure boundary. Therefore, the Reactor Water Cleanup System piping and valves located inside containment and associated with the reactor coolant pressure boundary are realigned from the Reactor Water Cleanup System to the Reactor Recirculation System.

The Reactor Water Cleanup System pipe supports located inside containment are safety-related and support the piping integrity of the reactor coolant pressure boundary intended function. The Reactor Recirculation System (LRA Section 2.3.1.4) includes the system intended function of "Pressure Boundary," which is described as reactor coolant pressure boundary. Therefore, the Reactor Water Cleanup System pipe supports located inside containment are realigned from the Reactor Water Cleanup System to the Reactor Recirculation System.

**Scoping Criteria**

The realigned components associated with the primary containment boundary and reactor coolant pressure boundary are safety-related and are in the scope of license renewal under the 10 CFR 54.4(a)(1) criteria.

**Chilled Water System**

Exelon has provided the information requested in this RAI based upon the PBAPS License Renewal Application submitted on July 2, 2001. As a result of providing the information requested by RAI 2.1.2-3, RAI 2.1.2-4, and RAI 3.3-1, the Chilled Water System which was originally determined to be out-of-scope of license renewal has now been determined to be in-scope for license renewal. Please refer to the response to RAI 2.1.2-3, RAI 2.1.2-4, and RAI 3.3-1 for additional information.

**System Description**

The chilled water system consists of three half-capacity, centrifugal refrigeration units, three half-capacity chilled water pumps, an expansion tank, piping, valves, instrumentation, and controls. It is a closed-loop system utilizing inhibited demineralized water. The pumps circulate warm return water to the refrigeration unit chillers. The chilled water is then piped to the drywell air coolers, the recirculation pump motor coolers, and the drywell equipment sump cooler. Two parallel supply headers and return headers penetrate the primary containment. A motor operated isolation valve is located outside the containment in each line. The inter-tie with the reactor building cooling water system is made by motor operated three-way valves. An automatic transfer from system to system is made upon loss of offsite power. Chilled water system shutdown requires a manual switchover. Chillers and pumps are remotely controlled from the main control room. A standby start feature is provided for each chilled water pump. Standby equipment is provided to assure system reliability.

Reference UFSAR Section 10.11.3.

**Description of Realigned Components**

The Chilled Water System piping passes through the primary containment boundary and includes primary containment isolation valves. These valves, associated control switches and interconnecting piping required for primary containment integrity are safety-related and are included in the scope of license renewal. These components were realigned from the Chilled Water System to the Primary Containment Isolation System. The Primary Containment Isolation System is described in LRA Section 2.3.2.3, and the realigned valves and piping are addressed in LRA Table 2.3.2-3.

**Component Intended Functions**

The Chilled Water System is not a safety-related system and does not have any safety-related system intended functions. The Chilled Water System components associated with the primary containment boundary are safety-related for the containment boundary intended function. The Primary Containment Isolation System (LRA Section 2.3.2.3) includes the system intended function of "Primary Containment Isolation" and therefore these primary containment components are realigned from the Chilled Water System to the Primary Containment Isolation System.

**Scoping Criteria**

The realigned components associated with the primary containment boundary are safety-related and are in the scope of license renewal under the 10 CFR 54.4(a)(1) criteria.

**Instrument Nitrogen System**

**System Description**

In order to eliminate the introduction of compressed air into the containment and to minimize the need for venting and discharge of the primary containment gases to the environment, an instrument nitrogen system is provided for pneumatic service to ensure the oxygen concentration is maintained less than 5 percent inside the drywell.

This system takes suction from the containment nitrogen atmosphere and discharges to a receiver that will be the source of supply for the required pneumatic services inside the drywell. In this manner, no air will be added to the containment atmosphere, but rather the containment nitrogen atmosphere will be recycled, with any losses of nitrogen made up by the normal inerting system.

The instrument nitrogen system lines are seismic Class I from the containment penetrations to the second isolation valve, and have automatic isolation valves which function as part of the primary containment and reactor vessel isolation control system when required.

Pneumatically operated devices located within the primary containment are normally operated by the instrument nitrogen system. Additionally, vital components, such as the main steam isolation valves and main steam relief valves, are provided with accumulators for reliable operation without compressor operation.

Reference UFSAR Section 10.17.5.

**Description of Realigned Components**

The Instrument Nitrogen System piping passes through the primary containment boundary to provide pneumatic supply to components inside the drywell and the torus. The Instrument Nitrogen System includes inboard and outboard primary containment isolation valves. These valves, associated control switches and interconnecting piping required for primary containment integrity are safety-related and are included in the scope of license renewal. These components were realigned from the Instrument Nitrogen System to the Primary Containment Isolation System. The Primary Containment Isolation System is described in LRA Section 2.3.2.3, and the realigned valves and piping are addressed in LRA Table 2.3.2-3.

The Instrument Nitrogen System inboard main steam isolation valve (MSIV) nitrogen accumulators inside containment were realigned from the Instrument Nitrogen System to the Main Steam System. The Main Steam System is described in LRA Section 2.3.4.1, and the realigned accumulators are addressed in LRA Table 2.3.4-1.

The Instrument Nitrogen System piping and valves that are part of the inboard MSIV nitrogen accumulator safety-related pressure boundary were realigned from the Instrument Nitrogen System to the Main Steam System. The Main Steam System is described in LRA Section 2.3.4.1, and the realigned valves and piping are addressed in LRA Table 2.3.4-1.

The Instrument Nitrogen System solenoid valves associated with the main steam system relief valves were realigned from the Instrument Nitrogen System to the Main Steam System. The

Main Steam System is described in LRA Section 2.3.4.1, and the realigned valves are addressed in LRA Table 2.3.4-1.

The Instrument Nitrogen System accumulators associated with the main steam system automatic depressurization system (ADS) relief valves were realigned from the Instrument Nitrogen System to the Backup Instrument Nitrogen to ADS System. The Backup Instrument Nitrogen to ADS System is described in LRA Section 2.3.3.13, and the realigned accumulators are addressed in LRA Table 2.3.3-13.

The Instrument Nitrogen System piping, valves and flexible hoses that are part of the ADS valve nitrogen accumulator safety-related pressure boundary were realigned from the Instrument Nitrogen System to the Backup Instrument Nitrogen to ADS System. The Backup Instrument Nitrogen to ADS System is described in LRA Section 2.3.3.13, and the realigned piping, valves and flexible hoses are addressed in LRA Table 2.3.3-13.

The Instrument Nitrogen System flow elements that are part of the backup instrument nitrogen supply to ADS were realigned from the Instrument Nitrogen System to the Backup Instrument Nitrogen to ADS System. The Backup Instrument Nitrogen to ADS System is described in LRA Section 2.3.3.13, and the realigned flow elements are addressed in LRA Table 2.3.3-13.

The non-safety-related Instrument Nitrogen System interfaces with the Safety Grade Instrument Gas System at end user components where the normal pneumatic supply is from the Instrument Nitrogen system and the safety-related backup pneumatic supply is from the Safety Grade Instrument Gas System. The interfacing Instrument Nitrogen System components are realigned from the Instrument Nitrogen System to the Safety Grade Instrument Gas System. The Safety Grade Instrument Gas System is described in LRA Section 2.3.3.12, and the realigned piping and valves are addressed in LRA Table 2.3.3-12.

The Instrument Nitrogen System supply to main steam relief valves RV-71E, H and J is credited during certain Appendix R fire scenarios to supply Safety Grade Instrument Gas to operate the relief valves. The interconnecting Instrument Nitrogen System piping and valves are realigned from the Instrument Nitrogen System to the Safety Grade Instrument Gas System. The Safety Grade Instrument Gas System is described in LRA Section 2.3.3.12, and the realigned piping and valves are addressed in LRA Table 2.3.3-12.

**Component Intended Functions**

The Instrument Nitrogen System is not a safety-related system and does not have any safety-related system intended functions. The Instrument Nitrogen System components associated with the primary containment boundary are safety-related for the containment boundary intended function. The Primary Containment Isolation System (LRA Section 2.3.2.3) includes the system intended function of "Primary Containment Isolation" and therefore these primary containment components are realigned from the Instrument Nitrogen System to the Primary Containment Isolation System.

The Instrument Nitrogen System components associated with the MSIV pneumatic accumulator pressure boundary are safety-related to support the MSIV isolation intended function. The Main Steam System (LRA Section 2.3.4.1) includes the system intended function of "Containment Isolation" and therefore these supporting components are realigned from the Instrument

Nitrogen System to the Main Steam System.

The Instrument Nitrogen System solenoid valves associated with the main steam relief valve actuators are safety-related to support the main steam relief valve intended function. The Main Steam System (LRA Section 2.3.4.1) includes the system intended function of "Overpressure Protection of the RPV" and therefore these supporting components are realigned from the Instrument Nitrogen System to the Main Steam System.

The Instrument Nitrogen System components associated with the backup nitrogen supply to ADS are safety-related to support the pressure boundary of the Backup Instrument Nitrogen to ADS system intended function. The Backup Instrument Nitrogen to ADS System (LRA Section 2.3.3.13) includes the system intended function of "Backup Nitrogen Supply" and therefore these supporting pressure boundary components are realigned from the Instrument Nitrogen System to the Backup Instrument Nitrogen to ADS System.

The Instrument Nitrogen System components associated with interfaces with the safety-related Safety Grade Instrument Gas System are safety-related to support the pressure boundary of the Safety Grade Instrument Gas System intended function. The Safety Grade Instrument Gas System (LRA Section 2.3.3.12) includes the system intended function of "Backup Nitrogen Supply" and therefore these supporting pressure boundary components are realigned from the Instrument Nitrogen System to the Safety Grade Instrument Gas System.

The Instrument Nitrogen System components associated with the nitrogen supply to main steam relief valves RV-71E, H and J, that is credited during certain Appendix R fire scenarios, are included in the scope of license renewal to support the gas supply pressure boundary. The gas supply for this scenario is from the Safety Grade Instrument Gas System nitrogen supply source. The Safety Grade Instrument Gas System (LRA Section 2.3.3.12) includes the system intended function of "Backup Nitrogen Supply" and therefore these supporting pressure boundary components are realigned from the Instrument Nitrogen System to the Safety Grade Instrument Gas System.

**Scoping Criteria**

The realigned components associated with the primary containment boundary are safety-related and are in the scope of license renewal under the 10 CFR 54.4(a)(1) criteria. The realigned components associated with the MSIV accumulators are safety-related and are in the scope of license renewal under the 10 CFR 54.4(a)(1) criteria. The realigned components associated with the backup nitrogen to ADS pneumatic supply pressure boundary are safety-related and are in the scope of license renewal under the 10 CFR 54.4(a)(1) criteria. The realigned components associated with the nitrogen supply to main steam relief valves RV-71E, H and J are in the scope of license renewal under the 10 CFR 54.4(a)(3) criteria.

**Instrument Air System**

**System Description**

The Instrument Air System is non-safety-related and designed to provide a continuous supply of filtered, dry, and oil-free air, nominally at 100 psig, to station instrumentation and controls.

Each Unit's Instrument Air System consists of two air headers, normally isolated from one another, which supply instrument air system sub-headers. The headers can be manually interconnected through a common connecting line. The "A" Instrument Air System Compressor supplies the "A" air header and it's associated loads. The "B" Instrument Air System Compressor supplies the "B" air header. In addition, the Backup Instrument Air Compressor provides a backup air source in the event that the Instrument Air System Compressors are unable to meet demand or are not available.

Each compressor train consists of an intake filter/silencer, a rotary compressor, an intercooler, an aftercooler, a moisture separator, and an air receiver tank. The Instrument Air System headers have two identical dryer trains that consist of two dryer prefilters, a dual tower cycling desiccant dryer, and two dryer afterfilters. Air from the compressors is filtered and dried through these dryer trains and then distributed to both safety and non-safety-related instruments and components.

The Units 2 and 3 Instrument Air System compressor trains supply air to safety-related and non-safety-related pneumatic operators, instruments and controls in their respective Units.

In addition, the Unit 2 Instrument Air System:

- Supplies clean, dry, oil-free air to the Diesel Building, Auxiliary Boiler Building, Water Plant Building, and Sewage Plant Building
- Provides a backup air supply to the Unit 2 Instrument Nitrogen System
- Provides a backup air supply to the Unit 3 Instrument Air System.

In addition, the Unit 3 Instrument Air System:

- Provides a backup air supply to the Unit 3 Instrument Nitrogen System
- Provides a backup air supply to the Unit 2 Instrument Air System.

Reference UFSAR Section 10.17.5.

**Description of Realigned Components**

The Instrument Air System outboard main steam isolation valve (MSIV) air accumulators outside containment were realigned from the Instrument Air System to the Main Steam System. The Main Steam System is described in LRA Section 2.3.4.1, and the realigned accumulators are addressed in LRA Table 2.3.4-1.

The Instrument Air System piping and valves that are part of the outboard MSIV air accumulator safety-related pressure boundary were realigned from the Instrument Air System to the Main Steam System. The Main Steam System is described in LRA Section 2.3.4.1, and the realigned valves and piping are addressed in LRA Table 2.3.4-1.

The non-safety-related Instrument Air System interfaces with the Safety Grade Instrument Gas

System at end user components where the normal pneumatic supply is from the Instrument Air system and the safety-related backup pneumatic supply is from the Safety Grade Instrument Gas System. The interfacing Instrument Air System components are realigned from the Instrument Air System to the Safety Grade Instrument Gas System. The Safety Grade Instrument Gas System is described in LRA Section 2.3.3.12, and the realigned piping and valves are addressed in LRA Table 2.3.3-12.

Portions of the pneumatic controls in the Battery and Emergency Switchgear Ventilation system are safety-related and are included in the scope of license renewal, as indicated on boundary drawings LR-M-399 sheets 1 and 4. The normal source for compressed gas to the pneumatic controls is from the non-safety-related Instrument Air system. The safety-related source for compressed gas to the pneumatic controls is from safety-related nitrogen bottles. The Instrument Air system piping, tubing and valves that are required to support the safety-related pneumatic system pressure boundary have been realigned from the Instrument Air system to the Battery and Emergency Switchgear Ventilation system for license renewal. The Battery and Emergency Switchgear Ventilation System is described in LRA Section 2.3.3.9. The realigned piping and valves were inadvertently omitted from LRA Table 2.3.3-9. See the response to RAI 2.2-1.1(b) below for details of the required changes to the LRA Tables.

**Component Intended Functions**

The Instrument Air System components associated with the MSIV pneumatic accumulator pressure boundary are safety-related to support the MSIV isolation intended function. The Main Steam System (LRA Section 2.3.4.1) includes the system intended function of "Containment Isolation" and therefore these supporting components are realigned from the Instrument Air System to the Main Steam System.

The Instrument Air System components associated with interfaces with the safety-related Safety Grade Instrument Gas System are safety-related to support the pressure boundary of the Safety Grade Instrument Gas System intended function. The Safety Grade Instrument Gas System (LRA Section 2.3.3.12) includes the system intended function of "Backup Nitrogen Supply" and therefore these supporting pressure boundary components are realigned from the Instrument Air System to the Safety Grade Instrument Gas System.

The Instrument Air System components associated with the pneumatic controls of the Battery and Emergency Switchgear Ventilation System are included in the scope of license renewal to support the required pneumatic pressure boundary. The safety-related gas supply for the Battery and Emergency Switchgear Ventilation System is from dedicated nitrogen gas bottles that are part of the Battery and Emergency Switchgear Ventilation System. The pneumatic controls are required to support the intended functions of the Battery and Emergency Switchgear Ventilation System (LRA Section 2.3.3.9) and therefore these supporting pressure boundary components are realigned from the Instrument Air System to the Battery and Emergency Switchgear Ventilation System.

**Scoping Criteria**

The realigned components are safety-related and are in the scope of license renewal under the 10 CFR 54.4(a)(1) criteria.

**Service Air System**

**System Description**

The Service Air System compressor supplies oil-free air to the Service Air System users. The Service Air System compressor can also be used as a backup to the Instrument Air compressors by supplying compressed air to the instrument air system dryer trains.

Reference UFSAR Section 10.17.5.

**Description of Realigned Components**

Portions of the Service Air System piping passes through the primary containment boundary and includes piping and valves that are part of the primary containment pressure boundary. These valves and interconnecting piping required for primary containment integrity are safety-related and are included in the scope of license renewal. These components were realigned from the Service Air System to the Primary Containment Isolation System. The Primary Containment Isolation System is described in LRA Section 2.3.2.3, and the realigned valves and piping are addressed in LRA Table 2.3.2-3.

**Component Intended Functions**

The Service Air System is not a safety-related system and does not have any safety-related system intended functions. The Service Air System components associated with the primary containment boundary are safety-related for the containment boundary intended function. The Primary Containment Isolation System (LRA Section 2.3.2.3) includes the system intended function of "Primary Containment Isolation" and therefore these primary containment components are realigned from the Service Air System to the Primary Containment Isolation System.

**Scoping Criteria**

The realigned components associated with the primary containment boundary are safety-related and are in the scope of license renewal under the 10 CFR 54.4(a)(1) criteria.

**Plant Equipment and Floor Drain System**

Exelon has provided the information requested in this RAI based upon the PBAPS License Renewal Application submitted on July 2, 2001. As a result of providing the information requested by RAI 2.1.2-3, RAI 2.1.2-4, and RAI 3.3-1, the Plant Equipment and Floor Drain System which was originally determined to be out-of-scope of license renewal has now been determined to be in-scope for license renewal. Please refer to the response to RAI 2.1.2-3, RAI 2.1.2-4, and RAI 3.3-1 for additional information.

**System Description**

The plant equipment and floor drainage system handles both radioactive and potentially radioactive wastes. Radioactive wastes are collected in the building sumps and transferred to the radwaste building for treatment, sampling, and analysis prior to disposal or reuse in the plant. Non-radioactive wastes are drained by gravity into the sewer system, or into the storm drain system and released.

Reference UFSAR Section 10.19.3.

**Description of Realigned Components**

Portions of the Plant Equipment and Floor Drain System piping pass through the primary containment boundary and include primary containment isolation valves. These valves, associated control switches and interconnecting piping required for primary containment integrity are safety-related and are included in the scope of license renewal. These components were realigned from the Plant Equipment and Floor Drain System to the Primary Containment Isolation System. The Primary Containment Isolation System is described in LRA Section 2.3.2.3, and the realigned valves and piping are addressed in LRA Table 2.3.2-3.

**Component Intended Functions**

The Plant Equipment and Floor Drain System is not a safety-related system and does not have any safety-related system intended functions. The Plant Equipment and Floor Drain System components associated with the primary containment boundary are safety-related for the containment boundary intended function. The Primary Containment Isolation System (LRA Section 2.3.2.3) includes the system intended function of "Primary Containment Isolation" and therefore these primary containment components are realigned from the Plant Equipment and Floor Drain System to the Primary Containment Isolation System.

**Scoping Criteria**

The realigned components associated with the primary containment boundary are safety-related and are in the scope of license renewal under the 10 CFR 54.4(a)(1) criteria.

**Process Sampling System**

Exelon has provided the information requested in this RAI based upon the PBAPS License Renewal Application submitted on July 2, 2001. As a result of providing the information requested by RAI 2.1.2-3, RAI 2.1.2-4, and RAI 3.3-1, the Process Sampling System, which was originally determined to be out-of-scope of license renewal, has now been determined to be in-scope for license renewal. Please refer to the response to RAI 2.1.2-3, RAI 2.1.2-4, and RAI 3.3-1 for additional information.

**System Description**

Samples are taken at locations throughout the plant from the process and auxiliary systems. Sample points are grouped as much as possible at normally accessible locations, and drains

are provided at these locations to limit the risk of contamination. Lines are sized to ensure purging and sufficient velocities to obtain representative samples. The samples are analyzed and the resulting information is used to evaluate the condition of the plant.

Reference UFSAR Section 10.20.3.

**Description of Realigned Components**

Portions of the Process Sampling System piping pass through the primary containment boundary and include primary containment isolation valves. These valves, associated control switches and interconnecting piping required for primary containment integrity are safety-related and are included in the scope of license renewal. These components were realigned from the Process Sampling System to the Primary Containment Isolation System. The Primary Containment Isolation System is described in LRA Section 2.3.2.3, and the realigned valves and piping are addressed in LRA Table 2.3.2-3.

**Component Intended Functions**

The Process Sampling System is not a safety-related system and does not have any safety-related system intended functions. The Process Sampling System components associated with the primary containment boundary are safety-related for the containment boundary intended function. The Primary Containment Isolation System (LRA Section 2.3.2.3) includes the system intended function of "Primary Containment Isolation" and therefore these primary containment components are realigned from the Process Sampling System to the Primary Containment Isolation System.

**Scoping Criteria**

The realigned components associated with the primary containment boundary are safety-related and are in the scope of license renewal under the 10 CFR 54.4(a)(1) criteria.

**Torus Water Cleanup System**

Exelon has provided the information requested in this RAI based upon the PBAPS License Renewal Application submitted on July 2, 2001. As a result of providing the information requested by RAI 2.1.2-3, RAI 2.1.2-4, and RAI 3.3-1, the Torus Water Cleanup System which was originally determined to be out-of-scope of license renewal has now been determined to be in-scope for license renewal. Please refer to the response to RAI 2.1.2-3, RAI 2.1.2-4, and RAI 3.3-1 for additional information.

**System Description**

The Torus Water Cleanup System is designed to provide a means of controlling Torus water level by discharging Torus water to the Radwaste System. It is also designed to maintain Torus water quality by pumping pool water to the Condensate System for processing. The Torus Water Cleanup System is generally not used for water quality control since pumping Torus water to the Condensate System could impact the performance of the Condensate System demineralizers.

The Torus Water Cleanup System consists of a single motor-driven torus water filter pump that takes suction from the Torus via the Reactor Core Isolation Cooling System. The torus water filter pump directs the water to the Radwaste System for controlling Torus water level. Makeup to replenish the water removed by the Torus Water Cleanup System is provided by the Condensate Storage and Transfer System via Core Spray System piping. Although not generally used, the torus water filter pump can also pump torus water to the Condensate System.

The Torus Water Cleanup System is designed for processing Torus water during normal plant operation and during shutdown. The Torus Water Cleanup System is automatically isolated from Primary Containment following postulated accident conditions.

**Description of Realigned Components**

Portions of the Torus Water Cleanup System piping pass through the primary containment boundary and include primary containment isolation valves. These valves, associated control switches and interconnecting piping required for primary containment integrity are safety-related and are included in the scope of license renewal. These components were realigned from the Torus Water Cleanup System to the Primary Containment Isolation System. The Primary Containment Isolation System is described in LRA Section 2.3.2.3. The realigned piping and valves were inadvertently omitted from LRA Table 2.3.2-3. See the response to RAI 2.2-1.1(b) below for details of the required changes to the LRA Tables.

The Torus Water Cleanup System makeup return isolation valves and associated piping are included in the scope of license renewal, and have been realigned from the Torus Water Cleanup System to the Core Spray System for license renewal. The Core Spray System is described in LRA Section 2.3.2.2. The realigned piping and valves are addressed in LRA Table 2.3.2-2.

**Component Intended Functions**

The Torus Water Cleanup System is not a safety-related system and does not have any safety-related system intended functions. The Torus Water Cleanup System components associated with the primary containment boundary are safety-related for the containment boundary intended function. The Primary Containment Isolation System (LRA Section 2.3.2.3) includes the system intended function of "Primary Containment Isolation" and therefore these primary containment components are realigned from the Torus Water Cleanup System to the Primary Containment Isolation System.

The Torus Water Cleanup System components associated with the Core Spray System pressure boundary are safety-related to support the Core Spray System pressure boundary intended function. These components are realigned from the Torus Water Cleanup System to the Core Spray System to support the Core Spray System intended functions.

**Scoping Criteria**

The realigned components are safety-related and are in the scope of license renewal under the 10 CFR 54.4(a)(1) criteria.

**Post Accident Sampling System**

**System Description**

The Post Accident Sampling System includes sample stations installed in the M-G Set rooms which are located adjacent to, and between, the reactor buildings on elevation 135'. The sample stations consist of separate gas and liquid sample modules and a control panel. Sample lines are provided from jet pump instruments, RHR systems, and containment gas analyzer lines. The Post Accident Sampling System includes a liquid return path to the Core Spray System, and a gas return path to the Containment Atmospheric Control and Dilution System. Laboratory equipment for the analysis of post-accident samples is located in the Chemistry Lab at elevation 130' and/or the reactivated Unit 1 laboratory. Additionally, an offsite laboratory is available, via contractual arrangements, to confirm site analyses and to perform the chloride analysis required by NUREG-0737, Item II.B.3.

Sampling activities are controlled from the sample station control panels that are designed for sequential, manual operation. The control panels are located at a distance of at least 6 feet from the sample stations. A minimal amount of time in close proximity to the sample stations is required to facilitate alignment and removal of sample vials and/or cartridges. Provisions are made for recirculation through the sample lines to the torus to assure that samples taken are representative of actual system conditions. Shielded sample casks are provided for transport of the gas and liquid samples to the laboratory. Several routes of transport are available to each of the laboratories. The chemistry lab is on elevation 130' while the Unit 1 laboratory is approximately 1000 feet away. The laboratories are equipped with the necessary equipment and reagents for timely analysis of samples. Samples can be obtained and analyzed within a three-hour period.

The sampling capability of the Post Accident Sampling System and the analysis capability of the Unit 1 and offsite laboratories satisfy NUREG-0737, Item II.B.3. The data obtained from the Post Accident Sampling System during accident conditions can be utilized to calculate the extent of fuel damage.

The sample stations may be powered from either a station auxiliary bus or an emergency bus so that sampling can be performed during a loss of offsite power. This design feature exists although the heat sink, emergency service water (ESW), for the reactor building closed cooling water (RBCCW) system has been eliminated as a result of locking closed the ESW-RBCCW cross-tie valves. Therefore, little, if any, cooling would be provided to the sample station during a loss of offsite power.

The sampling and analysis provisions at PBAPS have been designed such that it will be possible to obtain and analyze a sample at any time without exceeding the radiation exposure limits of general design criteria 19 in Appendix A of 10CFR50.

Reference UFSAR Section 7.20.4.6.

**Description of Realigned Components**

The Post Accident Sampling System includes a liquid return path to the Core Spray System. The liquid return isolation valves and associated piping are safety-related and are included in the scope of license renewal. These return isolation valves and associated piping have been realigned from the Post Accident Sampling System to the Core Spray System for license renewal. The Core Spray System is described in LRA Section 2.3.2.2. The realigned piping and valves are addressed in LRA Table 2.3.2-2.

The Post Accident Sampling System includes a gas return path to the Containment Atmospheric Control and Dilution System. The gas return isolation valves and associated piping are safety-related and are included in the scope of license renewal. These return isolation valves and associated piping have been realigned from the Post Accident Sampling System to the Containment Atmosphere Control and Dilution System for license renewal. The Containment Atmosphere Control and Dilution System is described in LRA Section 2.3.2.6. The realigned piping and valves are addressed in LRA Table 2.3.2-6.

**Component Intended Functions**

The Post Accident Sampling System is not a safety-related system and does not have any safety-related system intended functions. The Post Accident Sampling System components associated with the Core Spray System (LRA Section 2.3.2.2) pressure boundary are safety-related to support the Core Spray System pressure boundary intended function. These components are realigned from the Post Accident Sampling System to the Core Spray System to support the Core Spray System intended functions.

The Post Accident Sampling System components associated with the Containment Atmosphere Control and Dilution System pressure boundary are safety-related to support the Containment Atmosphere Control and Dilution System pressure boundary intended function. These components are realigned from the Post Accident Sampling System to the Containment Atmosphere Control and Dilution System to support the Containment Atmosphere Control and Dilution System intended functions.

**Scoping Criteria**

The realigned components are safety-related and are in the scope of license renewal under the 10 CFR 54.4(a)(1) criteria.

**Traversing In-Core Probe System**

**System Description**

The Traversing In-Core Probe (TIP) System includes three TIP machines, each of which has the following components:

1. One TIP detector.

2. One Drive mechanism.

3. Two Indexing mechanisms.

4. Up to 15 in-core guide tubes.

5. One chamber shield.

The subsystem allows calibration of LPRM signals by correlating TIP signals to LPRM signals as the TIP is positioned in various radial and axial locations in the core. The guide tubes inside the reactor are divided into groups. Each group has its own associated fifteen path indexer.

**Description of Realigned Components**

Portions of the Traversing In-Core Probe System piping pass through the primary containment boundary and include primary containment isolation valves. These valves, associated control switches and interconnecting piping and components required for primary containment integrity are safety-related and are included in the scope of license renewal. These components were realigned from the Traversing In-Core Probe System to the Primary Containment Isolation System. The Primary Containment Isolation System is described in LRA Section 2.3.2.3. The realigned piping and valves are addressed in LRA Table 2.3.2-3.

**Component Intended Functions**

The Traversing In-Core Probe System is not a safety-related system and does not have any safety-related system intended functions. The Traversing In-Core Probe System components associated with the primary containment boundary are safety-related for the containment boundary intended function. The Primary Containment Isolation System (LRA Section 2.3.2.3) includes the system intended function of "Primary Containment Isolation" and therefore these primary containment components are realigned from the Traversing In-Core Probe System to the Primary Containment Isolation System.

**Scoping Criteria**

The realigned components are safety-related and are in the scope of license renewal under the 10 CFR 54.4(a)(1) criteria.

**RAI 2.2-1.1(b)** Table 2.2-1 states that components have been realigned for the purposes of license renewal to the systems identified below from out-of-scope systems. Please identify the realigned components in each of these systems in sufficient detail to allow these components to be identified in an unambiguous, traceable manner back to the system from which they have been realigned.

Reactor Recirculation System
Primary Containment Isolation System
Battery and Emergency Switchgear Ventilation System
Safety-grade Instrument Gas System
Main Steam System
Fire Safe Shutdown System

RHR System
Core Spray System
HPCI System
RCIC System

**Response:**

Reactor Recirculation System

Piping and valves connecting the reactor bottom head drain to the reactor water cleanup system are shown on drawings LR-M-353 sheet 1 zone E-8 (LR-M-353 sheet 3 zone E-8 for Unit 3) and LR-M-354 sheet 1 zone F-8 (LR-M-354 sheet 2 zone F-8 for Unit 3). This section of piping and associated valves is realigned from the Reactor Water Cleanup System to the Reactor Recirculation System for license renewal, and are addressed in LRA Table 2.3.1-4.

Piping and valves connecting the reactor recirculation system piping to the reactor water cleanup system are shown on drawings LR-M-361 sheet 1 zone F-3 (LR-M-361 sheet 3 zone F-3 for Unit 3) and LR-M-354 sheet 1 zone F-8 (LR-M-354 sheet 2 zone F-8 for Unit 3). This section of piping and associated valves is realigned from the Reactor Water Cleanup System to the Reactor Recirculation System for license renewal, and are addressed in LRA Table 2.3.1-4.

Primary Containment Isolation System

The main steam sample containment isolation valves and associated piping, shown on drawing LR-M-351 Sheet 2 zone C-7/8 (and LR-M-351 Sheet 4 zone C-7/8 for Unit 3), are included in the scope of license renewal, and have been realigned from the Process Sampling System to the Primary Containment Isolation System for license renewal. The realigned piping and valves are addressed in LRA Table 2.3.2-3, in the Reactor Coolant environment.

The recirculation system sample containment isolation valves and associated piping, shown on drawing LR-M-353 Sheet 1 zone F-3/4 (and LR-M-353 Sheet 3 zone F-3/4 for Unit 3), are included in the scope of license renewal, and have been realigned from the Process Sampling System to the Primary Containment Isolation System for license renewal. The realigned piping and valves are addressed in LRA Table 2.3.2-3, in the Reactor Coolant environment.

The Primary Containment Leak Test System valves and associated piping that are part of the primary containment boundary, are shown on drawing LR-M-332 Sheets 1 and 2, and are included in the scope of license renewal. These valves and associated piping have been realigned from the Primary Containment Leak Test System to the Primary Containment Isolation System for license renewal. The realigned piping and valves are addressed in LRA Table 2.3.2-3, in the Wetted Gas environment.

The Containment Atmosphere Control system sample containment isolation valves and associated piping, shown on drawing LR-M-367 Sheets 1 and 2, are included in the scope of license renewal, and have been realigned from the Process Sampling System to the Primary Containment Isolation System for license renewal. The realigned piping and valves are addressed in LRA Table 2.3.2-3, in the Wetted Gas environment.

The Traversing Incore Probe (TIP) System containment isolation valves and associated piping, shown on drawing LR-M-376 Sheets 1 and 2, are included in the scope of license renewal, and have been realigned from the TIP system to the Primary Containment Isolation System for license renewal. The realigned piping and valves are addressed in LRA Table 2.3.2-3, in the Wetted Gas environment.

The Reactor Water Cleanup (RWCU) System containment isolation valves and associated piping, restricting orifices, flow elements and expansion joints, shown on drawing LR-M-354 Sheets 1 and 2, are included in the scope of license renewal, and have been realigned from the RWCU system to the Primary Containment Isolation System for license renewal. The realigned piping, valves, flow elements and restricting orifices are addressed in LRA Table 2.3.2-3, in the Reactor Coolant environment. The expansion joint is addressed in LRA Table 2.4-1 as part of the Drywell Penetrations.

The Torus Water Cleanup System containment isolation valves and associated piping, shown on drawing LR-M-362 Sheets 1 and 2 (zone A-3), are included in the scope of license renewal, and have been realigned from the Torus Water Cleanup System to the Primary Containment Isolation System for license renewal. The realigned piping and valves were evaluated by aging management review in the torus water environment. These components (piping and valves) in the torus water environment were inadvertently omitted from LRA Table 2.3.2-3, and will be added as shown below:

Table 2.3.2-3 Component Groups Requiring Aging Management Review - Primary Containment Isolation System

| Component Group | Component Intended Function | Environment |
|---|---|---|
| Casting and Forging<br>• Valve Bodies | • Pressure Boundary | Closed Cooling Water |
| Casting and Forging<br>• Valve Bodies | • Pressure Boundary | Dry Gas |
| Casting and Forging<br>• Valve Bodies | • Pressure Boundary | Reactor Coolant |
| Casting and Forging<br>• Valve Bodies | • Pressure Boundary | Wetted Gas |
| Casting and Forging<br>• Valve Bodies | • Pressure Boundary | Sheltered |
| *Casting and Forging*<br>• *Valve Bodies* | • *Pressure Boundary* | *Torus Water* |
| Piping<br>• Pipe | • Pressure Boundary | Closed Cooling Water |
| Piping<br>• Pipe | • Pressure Boundary | Dry Gas |
| Piping<br>• Pipe<br>• Tubing | • Pressure Boundary | Reactor Coolant |
| Piping<br>• Pipe<br>• Tubing | • Pressure Boundary | Sheltered |

| Component Group | Component Intended Function | Environment |
|---|---|---|
| Piping<br>• Pipe | • Pressure Boundary | Wetted Gas |
| *Piping*<br>• *Pipe* | • *Pressure Boundary* | *Torus Water* |
| Piping Specialties<br>• Restricting Orifice | • Pressure Boundary<br>• Throttle | Reactor Coolant |
| Piping Specialties<br>• Flow Elements | • Pressure Boundary | Reactor Coolant |
| Piping Specialties<br>• Restricting Orifice<br>• Flow Elements | • Pressure Boundary | Sheltered |

Similar changes are made to the Section 3 LRA Table 3.2-3, as shown below:

Table 3.2-3 Aging Management Review Results for Component Groups in the Primary Containment Isolation System

| Component Group | Component Intended Function | Environment | Materials of Construction | Aging Effect | Aging Management Activity |
|---|---|---|---|---|---|
| Casting and Forging<br>• Valve Bodies | • Pressure Boundary | Closed Cooling Water | Carbon Steel | Loss of Material | • CCW Chemistry (B.1.3) |
| Casting and Forging<br>• Valve Bodies | • Pressure Boundary | Dry Gas | Carbon Steel<br>Stainless Steel | None | • Not Applicable |
| Casting and Forging<br>• Valve Bodies | • Pressure Boundary | Reactor Coolant | Cast Austenitic Stainless Steel | Loss of Fracture Toughness | • ISI Program (B.1.8) |
| Casting and Forging<br>• Valve Bodies | • Pressure Boundary | Reactor Coolant | Stainless Steel | Cracking | • RCS Chemistry (B.1.2)<br>• ISI Program (1) (B.1.8) |
| Casting and Forging<br>• Valve Bodies | • Pressure Boundary | Reactor Coolant | Stainless Steel | Loss of Material | • RCS Chemistry (B.1.2)<br>• ISI Program (1) (B.1.8) |
| Casting and Forging<br>• Valve Bodies | • Pressure Boundary | Wetted Gas | Carbon Steel | Loss of Material | • Primary Containment Leakage Rate Testing Program (B.1.10) |
| Casting and Forging<br>• Valve Bodies | • Pressure Boundary | Sheltered | Carbon Steel,<br>Stainless Steel,<br>Cast Austenitic Stainless Steel | None | • Not Applicable |
| Casting and Forging<br>• Valve Bodies | • Pressure Boundary | Wetted Gas | Stainless Steel | None | • Not Applicable |
| *Casting and Forging*<br>• *Valve Bodies* | • *Pressure Boundary* | *Torus Grade Water* | *Carbon Steel* | *Loss of Material* | • *Torus Water Chemistry (B.1.5)* |
| Piping<br>• Pipe | • Pressure Boundary | Closed Cooling Water | Carbon Steel | Loss of Material | • CCW Chemistry (B.1.3) |
| Piping<br>• Pipe | • Pressure Boundary | Dry Gas | Stainless Steel | None | • Not Applicable |
| Piping<br>• Pipe | • Pressure Boundary | Reactor Coolant | Carbon Steel | Loss of Material | • RCS Chemistry (B.1.2)<br>• ISI Program (B.1.8) |
| *Piping*<br>• *Pipe* | • *Pressure Boundary* | *Torus Grade Water* | *Carbon Steel* | *Loss of Material* | • *Torus Water Chemistry (B.1.5)* |
| Piping<br>• Pipe<br>• Tubing | • Pressure Boundary | Reactor Coolant | Stainless Steel | Cracking | • RCS Chemistry (B.1.2)<br>• ISI Program (1) (B.1.8) |

| Component Group | Component Intended Function | Environment | Materials of Construction | Aging Effect | Aging Management Activity |
|---|---|---|---|---|---|
| Piping<br>• Pipe<br>• Tubing | • Pressure Boundary | Reactor Coolant | Stainless Steel | Loss of Material | • RCS Chemistry (B.1.2)<br>• ISI Program (1) (B.1.8) |
| Piping<br>• Pipe<br>• Tubing | • Pressure Boundary | Sheltered | Carbon Steel, Stainless Steel | None | • Not Applicable |
| Piping<br>• Pipe | • Pressure Boundary | Wetted Gas | Carbon Steel | Loss of Material | • Primary Containment Leakage Rate Testing Program (B.1.10) |
| Piping<br>• Pipe | • Pressure Boundary | Wetted Gas | Stainless Steel | None | • Not Applicable |
| Piping Specialties<br>• Restricting Orifice | • Pressure Boundary<br>• Throttle | Reactor Coolant | Stainless Steel | Cracking | • RCS Chemistry (B.1.2) |
| Piping Specialties<br>• Restricting Orifice | • Pressure Boundary<br>• Throttle | Reactor Coolant | Stainless Steel | Loss of Material | • RCS Chemistry (B.1.2) |
| Piping Specialties<br>• Flow Elements | • Pressure Boundary | Reactor Coolant | Stainless Steel | Cracking | • RCS Chemistry (B.1.2) |
| Piping Specialties<br>• Flow Elements | • Pressure Boundary | Reactor Coolant | Stainless Steel | Loss of Material | • RCS Chemistry (B.1.2) |
| Piping Specialties<br>• Restricting Orifice<br>• Flow Elements | • Pressure Boundary | Sheltered | Stainless Steel | None | • Not Applicable |

The Instrument Nitrogen System containment isolation valves and associated piping, shown on drawing LR-M-333 Sheets 1 and 2, are included in the scope of license renewal, and have been realigned from the Instrument Nitrogen system to the Primary Containment Isolation System for license renewal. The realigned piping and valves are addressed in LRA Table 2.3.2-3, in the Dry Gas environment.

The Plant Equipment and Floor Drain System containment isolation valves and associated piping, shown on drawings LR-M-368 and LR-M-369, are included in the scope of license renewal, and have been realigned from the Plant Equipment and Floor Drain system to the Primary Containment Isolation System for license renewal. The realigned piping and valves are addressed in LRA Table 2.3.2-3, in the Wetted Gas environment.

The Reactor Building Closed Cooling Water System containment isolation valves and associated piping, shown on drawings LR-M-316 sheets 1 and 3, are included in the scope of license renewal, and have been realigned from the Reactor Building Closed Cooling Water system to the Primary Containment Isolation System for license renewal. The realigned piping and valves are addressed in LRA Table 2.3.2-3, in the Closed Cooling Water environment.

The Service Air Systems containment isolation valves and associated piping, shown on drawings LR-M-373 and LR-M-320 sheets 21 and 41, are included in the scope of license renewal, and have been realigned from the Service Air system to the Primary Containment Isolation System for license renewal. The realigned piping and valves are addressed in LRA Table 2.3.2-3, in the Dry Gas environment.

The Drywell Chilled Water System containment isolation valves and associated piping, shown on drawings LR-M-327 sheets 2 and 4, are included in the scope of license renewal, and have been realigned from the Drywell Chilled Water system to the Primary Containment Isolation System for license renewal. The realigned piping and valves are addressed in LRA Table 2.3.2-3, in the Closed Cooling Water environment.

Battery and Emergency Switchgear Ventilation System

Portions of the pneumatic controls in the Battery and Emergency Switchgear Ventilation system are safety-related and are included in the scope of license renewal, as indicated on boundary drawings LR-M-399 sheets 1 and 4. The normal source for compressed gas to the pneumatic controls is from the non-safety-related Instrument Air system. The safety-related source for compressed gas to the pneumatic controls is from safety-related nitrogen bottles. The Instrument Air system piping, tubing and valve bodies that are required to support the safety-related pneumatic system pressure boundary have been realigned from the Instrument Air system to the Battery and Emergency Switchgear Ventilation system for license renewal. The subject piping and tubing with associated valves is shown as cross-hatched (pneumatic piping and tubing symbol) and is highlighted as in the scope of license renewal on boundary drawings LR-M-399 sheets 1 and 4.

As described above, the Battery and Emergency Switchgear Ventilation system includes some Instrument Air system components that are required to support the intended function of the Battery and Emergency Switchgear Ventilation system. These Instrument Air components are

included in the license renewal database, and were organized into component groups and evaluated in the AMR for the gas environment. When LRA Table 2.3.3-9 was prepared, the Battery and Emergency Switchgear Ventilation system component groups in the gas environment AMR were inadvertently omitted. LRA Table 2.3.3-9 requires the following changes:

| Component Group | Component Intended Function | Environment |
|---|---|---|
| Casting and Forging<br>• Valve Bodies | • Pressure Boundary | Sheltered, *Dry Gas,*<br>Ventilation Atmosphere |
| Elastomer<br>• Fan Flex Connections | • Pressure Boundary | Sheltered,<br>Ventilation Atmosphere |
| Piping<br>• *Pipe*<br>• Tubing | • Pressure Boundary | Sheltered, *Dry Gas,*<br>Ventilation Atmosphere |
| Sheet Metal<br>• Bird Screens | • Filter | Outdoor,<br>Ventilation Atmosphere |
| Sheet Metal<br>• Exhaust Hoods | • Pressure Boundary | Outdoor,<br>Ventilation Atmosphere |
| Sheet Metal<br>• Ducting<br>• Plenums<br>• Damper Enclosures<br>• Fan Enclosures | • Pressure Boundary | Sheltered,<br>Ventilation Atmosphere |
| Sheet Metal<br>• Louvers | • Throttle | Ventilation Atmosphere |

The valve bodies are brass material, and the pipe is copper material. There are no aging effects requiring management for these materials in the dry gas environment. The following changes will also be made to the corresponding Section 3 Table 3.3-9:

Table 3.3-9 Aging Management Review Results for Component Groups in the Battery and Emergency Switchgear Ventilation System

| Component Group | Component Intended Function | Environment | Materials of Construction | Aging Effect | Aging Management Activities |
|---|---|---|---|---|---|
| Casting and Forging<br>• Valve Bodies | • Pressure Boundary | Sheltered, *Dry Gas*, Ventilation Atmosphere | Stainless Steel, *Brass* | None | • Not Applicable |
| Elastomer<br>• Fan Flex Connections | • Pressure Boundary | Sheltered, Ventilation Atmosphere | Fiberglass Impregnated Neoprene | Change in Material Properties | • Ventilation System Inspection and Testing (B.2.3) |
| Piping<br>• *Piping*<br>• Tubing | • Pressure Boundary | Sheltered, *Dry Gas*, Ventilation Atmosphere | Stainless Steel, *Copper* | None | • Not Applicable |
| Sheet Metal<br>• Bird Screens | • Filter | Outdoor, Ventilation Atmosphere | Galvanized Steel Mesh | None | • Not Applicable |
| Sheet Metal<br>• Exhaust Hoods | • Pressure Boundary | Outdoor, Ventilation Atmosphere | Galvanized Steel with Galvanized Casing | None | • Not Applicable |
| Sheet Metal<br>• Ducting<br>• Plenums<br>• Damper Enclosures<br>• Fan Enclosures | • Pressure Boundary | Sheltered | Carbon Steel, Galvanized Steel | None | • Not Applicable |
| Sheet Metal<br>• Fan Enclosures | • Pressure Boundary | Ventilation Atmosphere | Carbon Steel | None | • Not Applicable |
| Sheet Metal<br>• Ducting<br>• Plenums<br>• Damper Enclosures | • Pressure Boundary | Ventilation Atmosphere | Galvanized Steel | None | • Not Applicable |
| Sheet Metal<br>• Louvers | • Throttle | Ventilation Atmosphere | Galvanized Steel | None | • Not Applicable |

Safety-grade Instrument Gas System

Piping and valves associated with the nitrogen supply to main steam relief valves RV-71E, H and J are in the scope of license renewal and are shown on drawings LR-M-333 sheets 1 and 3. This piping and associated valves are realigned from the Instrument Nitrogen system to the Safety Grade Instrument Gas System for license renewal, and are addressed in LRA Table 2.3.3-12.

Piping and valves associated with the pneumatic gas supply to the Containment Atmosphere Control and Dilution System air operated valves is in the scope of license renewal and shown on drawings LR-M-367 and LR-M-372. This piping and associated valves are realigned from the Instrument Air system to the Safety Grade Instrument Gas System for license renewal, and are addressed in LRA Table 2.3.3-12.

Main Steam System

Sample return isolation valves HV-2-01J-29698 and HV-2-01J-29699 and associated piping segment are in the scope of license renewal and are shown on drawing LR-M-351sheet 1 zone F/G-2. These valves and associated piping are realigned from the Process Sampling System to the Main Steam System for license renewal, and are addressed in LRA Table 2.3.4-1, in the Steam environment.

Steam supply isolation boundary valves and associated piping to the Offgas and Recombiner System are in the scope of license renewal and shown on drawings LR-M-331sheets 1 and 3, zone F-7/8 and LR-M-303 sheet 1 and 3, zone G/H-8. These valves and associated piping are realigned from the Offgas and Recombiner System to the Main Steam System for license renewal, and are addressed in LRA Table 2.3.4-1, in the Steam environment.

Piping, valves and accumulators that provide compressed gas to the inboard Main Steam Isolation Valves (MSIV) air actuators are in the scope of license renewal and shown on drawings LR-M-351 sheets 1, 2, 3 and 4. The piping, valves and accumulators are shown adjacent to and connected to the valve control system for each inboard MSIV, valve number AO-80A, B, C, D. These valves, accumulators and associated piping are realigned from the Instrument Nitrogen System to the Main Steam System for license renewal, and are addressed in LRA Table 2.3.4-1, in the Dry Gas environment.

Piping, valves and accumulators that provide compressed gas to the outboard MSIV air actuators are in the scope of license renewal and shown on drawings LR-M-351 sheets 1, 2, 3 and 4. The piping, valves and accumulators are shown adjacent to and connected to the valve control system for each outboard MSIV, valve number AO-86A, B, C, D. These valves, accumulators and associated piping are realigned from the Instrument Air System to the Main Steam System for license renewal, and are addressed in LRA Table 2.3.4-1, in the Dry Gas environment.

Fire Safe Shutdown System

The Fire Safe Shutdown System is a system designated to capture certain components associated with the fire safe shutdown analysis. The system contains active electrical components, fire barriers, and some panels. Drywell temperature monitoring instrumentation used for plant monitoring during postulated fire safe shutdown events are included in scope, and have been realigned from the Drywell Ventilation System to the Fire Safe Shutdown System for license renewal. The cables associated with this active instrumentation are addressed in LRA Table 2.5-1. In-scope panels have been realigned from the Substations and Transformers system to the Fire Safe Shutdown System for license renewal, and are addressed in LRA Table 2.4.16. In-scope panels have also been realigned from the 13 Kv System to the Fire Safe Shutdown System for license renewal, and are addressed in LRA Table 2.4.16.

RHR System

Cooling coils that provide room cooling to the RHR pump rooms are in the scope of license renewal and shown on drawings LR-M-315 sheets 2 and 4. These cooling coils are realigned from the Reactor Building Ventilation System to the RHR System for license renewal, and are addressed in LRA Table 2.3.2-5.

Core Spray System

Cooling coils that provide room cooling to the Core Spray pump rooms are in the scope of license renewal and shown on drawings LR-M-315 sheets 4 and 5. These cooling coils are realigned from the Reactor Building Ventilation System to the Core Spray System for license renewal, and are addressed in LRA Table 2.3.2-2, in the Raw Water and Sheltered environments.

Post Accident Sampling System sample return isolation valves and associated piping segment are in the scope of license renewal and are shown on drawing LR-M-362 sheets 1 and 2, zone F-4. These valves and associated piping are realigned from the Post Accident Sampling System to the Core Spray System for license renewal, and are addressed in LRA Table 2.3.2-2, in the Torus Water environment.

The Torus Water Cleanup System return isolation valves and associated piping, shown on drawing LR-M-362 Sheets 1 and 2 (zone F-1/2), are included in the scope of license renewal, and have been realigned from the Torus Water Cleanup System to the Core Spray System for license renewal. The realigned piping and valves are addressed in LRA Table 2.3.2-2, in the Condensate Storage Water environment.

HPCI System

Cooling coils that provide room cooling to the HPCI pump room are in the scope of license renewal and shown on drawings LR-M-315 sheets 2 and 4. These cooling coils are realigned

from the Reactor Building Ventilation System to the HPCI System for license renewal, and are addressed in LRA Table 2.3.2-1, in the Raw Water and Sheltered environments.

RCIC System

Cooling coils that provide room cooling to the RCIC pump room are in the scope of license renewal and shown on drawings LR-M-315 sheets 4 and 5. These cooling coils are realigned from the Reactor Building Ventilation System to the RCIC System for license renewal, and are addressed in LRA Table 2.3.2-4, in the Raw Water and Sheltered environments.

**RAI 2.2-1.2** Table 2.2-1 states that the Reactor Building Ventilation System is not included within the scope of license renewal. The comments section for this system states, "Piping and components associated with RHR, Core Spray, HPCI, and RCIC pump room cooling are included with the associated systems. Components credited for secondary containment boundary are included in secondary containment system." However, the intended function of room cooling is not identified in the system descriptions for the particular front-line systems: Section 2.3.2.5 for RHR, Section 2.3.2.1 for HPCI, Section 2.3.2.2 for Core Spray, or Section 2.3.2.4 for the RCIC system.

The staff believes that for safety-related systems (i.e., HPCI and RCIC), pump room cooling is an important safety-related function for environmental qualification, 10 CFR 50.49, which is a regulated event specifically cited by the license renewal rule in 10 CFR 54.4(a)(3). The intended function of pump room cooling is cited in UFSAR Sections 7.19, "Class 1E Equipment Environmental Qualification," pages 7.19-1 to 7.19-3, and Section 7.19.1, "Effects of Loss of Air Conditioning and Ventilation on Control Room and Equipment Room Equipment". In particular, page 7.19-2, Rev. 17, 04/00, and page 7.19-3, Rev. 17, 04/00, of the UFSAR state that:

"...For the core spray and RHR pump rooms, loss of ventilation in one room as a result of single active failure could result in loss of function for ECCS equipment in that room... For the standby diesel-generator rooms, loss of ventilation in one room as a result of a single active failure could result in loss of the function of the associated diesel generator due to insufficient cooling..."

In view of the above, please explain where in the LRA, the intended function of pump room cooling is addressed for the HPCI, RCIC, RHR and Core Spray systems. Please refer to (and provide if necessary) appropriate drawings, and explain why UFSAR Section 7.19 is not referenced in the LRA.

**Response:**

The cooling intended function for all components cooled by the Emergency Service Water (ESW) System is included under the ESW System intended function of "Component Cooling." The HPCI, RCIC, RHR and Core Spray System room coolers are cooled by the ESW system.

The ESW system performs the room cooling function by providing cooling water to the room coolers. The function of "room cooling" is considered a supporting function to the equipment in the individual rooms, and so is not included as a system intended function for the HPCI, RCIC, RHR and Core Spray Systems.

The UFSAR Section references provided in Section 2.3 of the LRA are intended to provide a cross-reference to the applicable system as described in the UFSAR. UFSAR Section 7.19 describes equipment qualification at PBAPS, and is not applicable to the system descriptions.

**RAI 2.2-1.3** Table 2.2-1 states in the comments field for the Drywell Ventilation System, "Instrumentation credited for Fire Safe Shutdown is included in the Fire Safe Shutdown System...." Table 2.2-3 states that the Fire Safe Shutdown System is in the scope of license renewal and that in-scope components from the out-of-scope Substations & Transformers and 13 Kv systems were realigned to the Fire Safe Shutdown System. However, the LRA does not contain any further description or reference to the Fire Safe Shutdown System. Please clarify whether a separate system exists for the fire safe shutdown function, and what components in this system are subject to an AMR.

**Response:**

A separate system for the fire safe shutdown function does not exist. The fire safe shutdown function is performed by a combination of plant systems and structures that are included in the scope of license renewal. The specific systems and structures required for the fire safe shutdown function (part of compliance with 10CFR50.48) can be identified from the approved scoping forms and also from the project position paper LR-P-002.

The Fire Safe Shutdown System is a system that was created to group and track certain components specific to fire safe shutdown and not readily associated with other traditional plant systems. This system includes fire barrier wraps that are subject to an AMR and are included in LRA Section 2.4.14, "Hazard Barriers and Elastomers."

The Drywell Ventilation System instrumentation components credited for fire safe shutdown are active and not subject to an AMR. Related passive components such as cables and supports are subject to an AMR and are addressed in the LRA as commodity components in LRA Sections 2.4 and 2.5.

The Substations & Transformers system and 13 Kv system components included in the Fire Safe Shutdown system that require an AMR are control panels and equipment cabinets. The control panels and equipment cabinets that are subject to an AMR are included in LRA Section 2.4.16, "Electrical and Instrumentation Enclosures and Raceways."

**Containment Atmosphere Control and Dilution System (Section 2.3.2.6)**

**RAI 2.3.2.6-1.** 10 CFR 54.21 requires the applicant to identify those structures and components that are subject to an aging management review. The following components and housings are shown on drawing LR-M-372, as being within the scope of license renewal:

- Atmospheric vaporizer 60GC-1", sheet 1, location G4.
- Pressure build coil, sheet 1, location G4.
- Numerous fittings, increasers and reducers.
- Rupture disk, sheet 1, location G4.
- Numerous flow elements.
- Numerous temperature elements.

However, Table 2.3.2-6 does not identify these components as subject to an AMR. Please provide the basis for the exclusion of these components from an AMR.

**Response:**

The atmospheric vaporizer and the pressure build coils are categorized as pipe and are therefore included in the Piping Component Group in LRA Table 2.3.2-6. The reducers and increasers are fittings and part of the piping system. As described in the LRA, section 3.0, page 3-3, the component group of piping includes piping, tubing and fittings. Fittings, increasers and reducers are therefore included in the Piping Component Group in LRA Table 2.3.2-6.

The identified rupture disk, flow elements and thermowells (pressure boundary components associated with temperature elements) are in the scope of license renewal and require an aging management review. These components were inadvertently omitted from LRA Table 2.3.2-6 and also LRA Table 3.2-6. These components should be included in LRA Table 2.3.2-6 as shown below:

Table 2.3.2-6 Component Groups Requiring Aging Management Review - Containment Atmosphere Control and Dilution System

| Component Group | Component Intended Function | Environment |
|---|---|---|
| Casting and Forging<br>• Valve Bodies<br>• Pump Casings | • Pressure Boundary | Dry Gas |
| Casting and Forging<br>• Valve Bodies<br>• Pump Casings | • Pressure Boundary | Sheltered |
| Casting and Forging<br>• Valve Bodies | • Pressure Boundary | Wetted Gas |
| Piping<br>• Pipe | • Pressure Boundary | Dry Gas |

| Component Group | Component Intended Function | Environment |
|---|---|---|
| Piping<br>• Pipe | • Pressure Boundary | Sheltered |
| Piping<br>• Pipe | • Pressure Boundary | Wetted Gas |
| Piping Specialties<br>• Nitrogen Electric Vaporizer<br>• ***Rupture Disks***<br>• ***Flow Elements***<br>• ***Thermowells*** | • Pressure Boundary | Dry Gas, Sheltered |
| Vessel<br>• Nitrogen Storage Tanks<br>• $H_2$ and $O_2$ Detection Chambers | • Pressure Boundary | Dry Gas, Sheltered |

These components should be included in LRA Table 3.2-6 as shown below:

| | | | | | |
|---|---|---|---|---|---|
| Piping<br>• Pipe | • Pressure Boundary | Wetted Gas | Stainless Steel | None | • Not Applicable |
| Piping Specialty<br>• Nitrogen Electric Vaporizers<br>• ***Rupture Disks***<br>• ***Flow Elements***<br>• ***Thermowells*** | • Pressure Boundary | Dry Gas, Sheltered | Carbon Steel | None | • Not Applicable |
| Vessel<br>• Nitrogen Storage Tanks | • Pressure Boundary | Dry Gas, Sheltered | Carbon Steel | None | • Not Applicable |
| Vessel<br>• $H_2$ and $O_2$ Detection Chambers | • Pressure Boundary | Dry Gas, Sheltered | Stainless Steel | None | • Not Applicable |

**RAI 2.3.2.6-2.** Section 2.3.2.6, pages 2-50 and 2-51, lists the intended functions of the CAD and CAC system as: controlling primary containment pressure, providing a nitrogen source for safety-grade instrument gas, and monitoring the concentration of combustible gas inside primary containment. However, primary containment inerting is also an important safety-related function. The CAD purge mode is required to meet the Technical Specification requirement that the primary containment be purged of air with nitrogen until the atmosphere contains less than four (4) percent oxygen. Furthermore, the UFSAR reads: "Reference 12 [to the PBAPS UFSAR], states that although the [CAD] system is no longer assumed to be the primary means of combustible gas control, the system will be

maintained as originally installed." In light of this UFSAR quotation, the LRA does not provide the staff reasonable assurance that it is acceptable to exclude the CAD system's primary containment inerting function from being classified as an intended function, considering that the CAD system is to be "maintained as originally installed." Please provide the basis for excluding the primary containment inerting intended function of the CAD purge mode from the scope of license renewal, considering the staff's discussion.

**Response:**

The primary containment inerting function does not meet the definition of safety-related (as defined in 10 CFR 50.49(b)(1)) and therefore is not considered a safety-related intended function for license renewal. The primary containment atmosphere is maintained at less than 4.0 volume percent oxygen concentration in accordance with the Technical Specifications, so that in the event of a LOCA, the postulated resulting hydrogen and oxygen generation will not result in a combustible mixture inside containment. The inerting function is used to establish and maintain Technical Specification required containment atmosphere conditions; however, this system operating mode is not required to mitigate postulated accidents.

The primary means of hydrogen control for PBAPS is containment inerting and control of external sources of oxygen. Therefore, the operation of the CAD system and its potential contribution to offsite dose is not assumed in the plant accident analysis described in UFSAR Chapter 14. As described in UFSAR Section 5.2.3.9.2, the CAD system is designed to comply with the requirements of 10CFR50.44. Although the system is no longer assumed to be the primary means of combustible gas control, the system will be maintained as originally installed. This statement requires that the CAD system be maintained as originally designed, but eliminates the need to reevaluate the system's design for design changes that have no impact on the original CAD system design basis. Specifically, the CAD system shall be designed to meet the requirements of 10CFR50.44 and criteria 41, 42, and 43 of Appendix A of 10 CFR Part 50 based on the original plant design. The CAD system as such is an NRC mandated system that is not assumed to operate, and the design capacity of the CAD system is based on original plant design.

This system is included in the scope of license renewal, and the components that require aging management are included in Chapter 3. However, based on the above current licensing basis (CLB) description, the primary containment inerting function is not a safety-related intended function for license renewal.

**RAI 2.3.2.6-3.** The applicant should identify the intended function of in-scope components subject to an aging management review. Table 2.3.2-6 lists pressure boundary as the only intended function of the H2 and O2 detection chambers, though these components have a combustible gas monitoring intended function for the CAC and CAD system. These components are shown on drawing LR-M-372, sheets 3 and 4 (locations E3, E4, E6, E7), as being in the scope of license renewal. Please provide the basis for not identifying combustible gas monitoring as an intended function.

**Response:**

The combustible gas monitoring intended function identified in LRA Section 2.3.2.6 is a system

intended function. The system intended functions are those functions that are the basis for including them within the scope of license renewal as specified in 10CFR54.4(a)(1) through (3). The intended functions identified in Table 2.3.2-6 are component intended functions. The term "component intended function" refers to the specific component, component group or commodity intended function needed to support a system or structure intended function. Component intended functions are identified during the screening process. The list of applicable component intended functions is provided in LRA Table 2.1-1. The combustible gas monitoring function identified in LRA Section 2.3.2.6 is a system intended function and not a component intended function, and therefore is not included in Table 2.3.2-6.

**Standby Gas Treatment System (2.3.2.7)**

**RAI 2.3.2.7-1(a)** LRA Table 2.3.2-7 does not identify the components and their housings listed below, although they support the safety related function of the standby gas treatment system (SGTS) to conform with the guidelines of 10 CFR 100 radioactive release.

These components, including their housings, are shown on drawing LR-M-397, sheet 1, as being in the scope of license renewal, but are not listed in Table 2.3.2-7 of the LRA. Provide justification for the exclusion of these components and their housings from the scope of license renewal and not subject to an AMR.

Housings and components excluded are:

- Demisters OAV347 (Train A) location F7 and OBV347 (Train B), location C7.
- Heating coils OAE065 (Train A), location F7 and OBE065 (Train B), location C7.
- Prefilters OAF034 (Train A), location F6 and OBF034 (Train B), location C6.
- High efficiency particulate air (HEPA) filters OAF035 (Train A), location F6 and OBF035 (Train B), location C6.
- Charcoal filters, OAF036 (Train A), location F6, and OBF036 (Train B), location C6.
- HEPA filters OAF037 (Train A), location F6 and OBF037 (Train B), location C6.
- Fire spray nozzles shown at locations F6 (Train A) and C6 (Train B).

If the filter media for the components identified above were excluded on the basis that these media components are routinely replaced

(consumables), describe the plant-specific monitoring program and the specific performance standards and criteria for periodic replacement.

**Response:**

The components identified above are included in the scope of license renewal, but are not subject to an AMR as they are short-lived passive components. These components are condition monitored at a frequency of once every 12 months using station procedures ST-M-09A-600-2 (3) and ST-M-09A-610-2 (3) and are replaced if filter failure is determined. Review of plant history for these components has indicated that of these filters were replaced during the last 20 years and would expect that they will be replaced again in the future.

The ducting and plenum that house these filters are included in the scope of license renewal and an AMR performed. These are included in Table 2.3.2-7 and Table 3.2-7.

**RAI 2.3.2.7-1(b)** LRA Table 2.3.2-7 does not identify the drywell purge supply and exhaust filtration system components and their housings listed below, although they support the safety related exhaust filtration function through the standby gas treatment system (SGTS) to conform with the guidelines of 10 CFR 100 radioactive release.

These components including their housings are shown on drawing LR-M-391, sheets 1 and 2, as being in the scope of license renewal, but are not listed in Table 2.3.2-7 of the LRA. Provide justification for the exclusion of these components and their housings from the scope of license renewal and not subject to an AMR.

Housings and components excluded are:

LRA Drawing LR-M-391, Sheet 1, Primary Containment isolation and Control (PB APS Unit 2 and Common)

- Piping (or ductwork) and valve (or damper) housings for AO-20452 through AO-20470 at locations F7, E7, D7&D8, F3&F4, E2&E3, D3, C4, and B4.
- Piping (or ductwork) at locations between B6 through E6.
- Instrumentation taps at locations F3, F7, E2, E7, D3, D7 (two), and B6

LRA Drawing LR-M-391, Sheet 2, Primary Containment isolation and Control (PB APS Unit 3)

- Piping (or ductwork) and valve (or damper) housings for AO-30452 through AO-30470 at locations F7, E7, D7&D8, F3&F4, E2&E3, D3, C4, and B4.

- Piping (or ductwork) at locations between B6 through E6.
- Instrumentation taps at locations F3, F7, E2, E7, D3, D7 (two), and B6

**Response:**

The components identified above are part of the secondary containment as shown by the flag "SC" on drawing LR-M-391, sheets 1 and 2. As such, the valve bodies, ducting and tubing are shown in Table 2.3.2-8 in section 2.3.2.8, "Secondary Containment System."

**RAI 2.3.2.7-1(c)** Clarify whether the housings for radiation detectors 430A/B/C/D and 432A/B/C/D at locations E3&E4 and F4&F5 on drawing LR-M-391, sheets 1 and 2, Primary Containment isolation and Control (PB APS Units 2 and 3) are within the scope of license renewal and subject to an AMR.

**Response:**

The subject radiation detectors 430A/B/C/D AND 432A/B/C/D on drawing LR-M-391 sheets 1 and 2 are in the scope of license renewal. In accordance with NUREG-1800 and NEI 95-10, these radiation detectors are active and not subject to an AMR. These detectors are environmentally qualified instruments and are therefore addressed as a TLAA.

**Secondary Containment System (Section 2.3.2.8)**

**RAI 2.3.2.8-1.** The applicant should identify those structures and components subject to an aging management review. Table 2.3.2-8 does not list damper housings (numerous locations) and test connections (locations E2, E7, D3 and D8) although these components are shown on drawing LR-M-391, sheets 1 and 2, as being in the scope of license renewal. Please provide the basis for the LRA's exclusion of these components from the scope of license renewal and the AMR screening process.

**Response:**

This question is the same as RAI 2.3.2.7-1(b) and refers to air operated valves. These valves are secondary containment isolation valves and are listed in Table 2.3.2-8 as valve bodies. Also, test connections are considered in the ducting component group.

**RAI 2.3.2.8-2.** The staff believes that the secondary containment penetrations should be in the scope of license renewal and subject to an AMR. The LRA section for the secondary containment system states that secondary containment penetrations "are considered as part of the structure." However, Table 2.4-2, which lists components of the Reactor Building Structure which are within the scope of license renewal and subject to an AMR, does not list secondary containment penetrations, nor could justification for their exclusion be found. For this reason, the staff does not have reasonable assurance that the secondary containment

penetrations have been properly handled in the LRA. Please provide the LRA section and the AMR table entry in which the secondary containment penetrations are included, or justify their exclusion.

**Response:**

All penetrations were treated as hazard barrier components. As such, the secondary containment penetrations are included in Table 2.4-14 as hazard barriers and in Table 3.5-14 for aging management.

**Fuel Pool Cooling and Cleanup System (Section 2.3.3.2)**

**RAI 2.3.3.2-1.** On drawing LR-M-363 sheets 1 and 2, a spool piece (location E2), reducers and increasers (location F2) are shown as being within the scope of license renewal. However, the spool piece, increasers and reducers are not specifically listed in Table 2.3.3-2 on page 2-57 of the LRA. The staff believes that the spool piece, increasers and reducers should be in the scope of license renewal and subject to an AMR. Please indicate whether these piping components are included in the scope of license renewal and subject to an AMR by adding them to Table 2.3.3-2, or provide a justification for their exclusion.

**Response:**

The reducers and increasers are fittings and part of the piping system. As described in the LRA, section 3.0, page 3-3, the component group of piping includes piping, tubing and fittings. Thus, reducers and increasers at location E2 and F2 are included in the "Piping" component group listed in LRA Table 2.3.3-2.

**RAI 2.3.3.2-2.** On drawing LR-M-363 sheets 1 and 2, in the fuel storage pool, there is an unidentified component indicated by a circle at location F4. The staff believes that this component may perform one or more intended functions, such as pressure boundary, which justify its inclusion within the scope of license renewal. However, the symbol used to identify this component is not identified on the legend (drawing LR-M-300). For this reason, the staff does not have reasonable assurance that this component has been listed in Table 2.3.3-2, or elsewhere in the LRA. Please identify this component and indicate where in the LRA it is included within the scope of license renewal and subject to an AMR or provide a justification for its exclusion.

**Response:**

The circle is not a component designator. Instead it represents two (2) siphon breaker holes in each pipe to prevent siphoning of water from the pool.

**RAI 2.3.3.2-3.** In Table 2.3.3-2 on page 2-57 of the LRA, a restricting orifice is listed as a component requiring an AMR. However, pressure boundary is the only intended function listed for this component. The staff believes that flow restriction is also an intended function of this component. Please clarify whether flow restriction

should also be an intended function of this component.

**Response:**

The restricting orifice was installed in the RHR to Fuel Pool discharge line during plant construction to give a pressure drop large enough to prevent the upstream valves from vibrating open. However the addition of RHR pump discharge control valves, after the original plant construction, provides sufficient flow control such that the restricting orifice is no longer needed. Thus the restricting orifice is not required to provide flow restriction (throttle) intended function.

**High Pressure Service Water (Section 2.3.3.5)**

**RAI 2.3.3.5-1.** According to Section 10.7.4 of the UFSAR, one of the functions of the high pressure service water system is to inhibit leakage of radioactive material from the RHR system to the environment. The staff believes that the function of the high pressure service water system to inhibit leakage of radioactive material from the RHR system to the environment should be listed in the LRA. Please provide the basis for the exclusion of this function.

**Response:**

The function of the high pressure service water system to inhibit leakage of radioactive material from the RHR system to the environment is described in the System Description of LRA Section 2.3.3.5. As indicated in the referenced UFSAR Section 10.7.4, this function is a power generation design basis function, and not a safety-related intended function of the high pressure service water system.

**RAI 2.3.3.5-2.** Section 10.7.5 of the UFSAR states that under abnormal operating conditions RHR pressure could exceed high pressure service water system pressure. An RHR heat exchanger leak under these abnormal conditions would result in radioactive RHR water migrating into the high pressure service water system and into the river. To limit the release of radioactive water to the river from this potential release path, signals from the radiation monitors in the system which sample the high pressure service water system upstream and downstream of the RHR heat exchangers initiate an alarm in the control room at a predetermined radiation level.

The HPSW system radiation monitors can be isolated by closing valves, e.g. valve 63H23452A shown on drawing LR-M-315, sheet 1 at location C8. This drawing shows that the in-scope instrument tubing extends only to the valves and does not include the monitoring system itself or the tubing beyond the isolation valves. 10 CFR 54.4(a)(1)(iii) requires that safety-related SSCs relied upon to prevent or mitigate the consequences of accidents that could result in potential offsite exposure comparable to the 10 CFR 100 guidelines be within the scope of license renewal. Since radiation monitoring is an essential component of the function to inhibit leakage of radioactive material from the RHRS to the environment, it appears that the radiation monitoring instruments and the tubing are in-scope. In addition, the valves in the tubing to the radiation monitors

appear to be normally open, so the tubing and radiation monitors also serve a pressure boundary function. Provide justification why the radiation monitors and the tubing which delivers fluid to the monitors are not in scope.

**Response:**

The high pressure service water (HPSW) system radiation monitors are not safety-related and do not have any safety-related intended functions. These radiation monitors are designed to provide operators with an indication of a potential heat exchanger tube leak.

The HPSW system radiation monitoring system is a process liquid radiation monitoring system (UFSAR Section 7.12.4) and is provided to indicate when operational limits for the normal release of radioactive material to the environs are being approached, and to indicate process system malfunctions by detecting the presence of radioactive material in a normally uncontaminated system. These radiation monitors provide a clear indication to operations personnel whenever the radioactivity level approaches or exceeds pre-established operational limits for the discharge of radioactive material to the environs. This function is associated with normal plant operation, and is not required to mitigate the consequences of accidents that could result in potential offsite exposure comparable to the 10 CFR 100 guidelines.

The HPSW radiation monitoring system one-inch piping downstream of the boundary isolation valves is not safety-related. Potential flow diversion due to a postulated failure of this small diameter piping would not have a significant impact on the flow through the 18-inch diameter HPSW system piping, and closing the boundary isolation valves can easily isolate the one-inch piping.

Since the HPSW radiation monitoring system is not required for monitoring radioactive material releases comparable to 10 CFR 100 guidelines, and since failure of the system will not impact the intended function of the HPSW system, the HPSW radiation monitors and the associated piping do not have any safety-related intended functions and are not in the scope of license renewal.

**Emergency Service Water (Section 2.3.3.6)**

**RAI 2.3.3.6-1.** According to NUREG/CR-4550, Vol. 4, Rev. 1, Part 3 (page 4.3-5), a LOCA in the Normal Service Water (NSW) system, where the piping interfaces with the Emergency Service Water (ESW) system would cause the ESW to feed the break instead of cooling certain safety system loads. That is, a rupture of the NSW piping in a post accident condition could cause the ESW (an in-scope system) to fail to perform its safety function. The drawings for the ESW system (LR-M-315) do not indicate the boundary between the ESW and NSW systems, so it cannot be determined whether the section of piping referred to in NUREG/CR-4550 has been re-categorized to the ESW system. Please clarify the location of the boundary between the NSW system and the ESW system. If a section of NSW piping has been re-categorized to the ESW system, this should be noted in Table 2.2-1.

**Response:**

The boundary between the Unit 2 non-safety-related service water system and the safety-related emergency service water (ESW) system is shown on drawing LR-M-315 sheet 5, at zone H-2. The interface boundary is at the safety-related ESW system check valve 2-33-514, which is included in the scope of license renewal. This check valve prevents flow from the ESW system to the non-safety-related service water system, in the event of a pipe rupture in the non-safety-related service water system. The ESW system side of the check valve is ESW piping, so non-safety-related service water piping is not re-categorized to the ESW system.

The boundary between the Unit 3 non-safety-related service water system and the safety-related emergency service water (ESW) system is shown on drawing LR-M-315 sheet 4, at zone F-8. The interface boundary is at the safety-related ESW system check valve 3-33-514, which is included in the scope of license renewal. This check valve prevents flow from the ESW system to the non-safety-related service water system, in the event of a pipe rupture in the non-safety-related service water system. The ESW system side of the check valve is ESW piping, so non-safety-related service water piping is not re-categorized to the ESW system.

**Fire Protection System (Section 2.3.3.7)**

**RAI 2.3.3.7-1.** The fire protection licensing bases for the plant are outlined in the PBAPS Fire Protection Program document and includes responses to APCSB Branch Technical Position 9.5-1, Appendix A. The NRC issued an SER with four supplements to address the plant commitments in response to the BTP. The retroactivity of 10 CFR 50.48, Appendix R requirements applied to PBAPS was determined based on these SERs.

Section 2.1.2.1 of the Scoping and Screening Methodology identified SSCs relied upon to demonstrate compliance with 10 CFR 50.48 as being included in the scope, but does not explicitly include commitments made to the criteria contained in the BTP and its related SERs. Verify that the fire protection criteria contained in the BTP and related SERs were considered in the scoping and screening process.

**Response:**

License Renewal Application Section 2.1.2.1, page 2-9, states, "Compliance with 10CFR50.48 is documented in the Fire Protection Program (FPP) that is part of the PBAPS UFSAR."

The PBAPS FPP describes the fire protection features of the plant necessary to comply with NRC Branch Technical Position (BTP) APCSB 9.5-1, Appendix A.

Chapter 1 of the FPP, "Introduction", page 1-1, references the May 23, 1979 NRC SER addressing the FPP at PBAPS. Additionally, it addresses SER supplement 1, dated August 14,1980, SER supplement 2, dated September 15, 1980, SER supplement 3, dated October 10, 1980, SER supplement 4, dated November 24, 1980. On September 16, 1993, the NRC issued an SER for the PBAPS FPP through revision 4. The initial submittal of the FPP was September 30, 1986.

The NRC SER dated September 16, 1993 states "The NRC staff has completed a review of the "Fire Protection Program" document through revision 4."... "The enclosed safety evaluation (SE) concludes that the safe shutdown capability at Peach Bottom, as described in the PBAPS Fire Protection Program, with approved exemptions, satisfies the requirements of Section III.G and III.L of Appendix R to 10CFR Part 50."

Therefore, the PBAPS FPP, which describes the fire protection features of the plant necessary to comply with NRC BTP APCSB 9.5-1, Appendix A, and above identified SERs, was used to identify those SSCs relied upon to demonstrate compliance with 10 CFR 50.48, as stated in Section 2.1.2.1 of the Scoping and Screening Methodology.

**RAI 2.3.3.7-2.** The provision of fire detection and alarm systems and components is required both by Branch Technical Position APCSB 9.5-1, Appendix A and by 10 CFR 50, Appendix R.

The PBAPS Unit 2 and 3 Fire Protection Program document in Item 46, page 3.1-48 indicates that fire detection and alarm systems and components have been installed in the plant in accordance with regulatory requirements. Paragraph 2.3.3.7, Fire Protection System, System Description, identifies heat and smoke detection installed in all areas containing safety related equipment, except as exempted by the NRC. Table 2.2-3, Electrical and I&C System Scoping Results does not reference Fire Detection and Alarm. Based on these criteria, the staff believes that the Fire Detection and Alarm System should be in the scope of license renewal and subject to an AMR. Please include this system or provide the justification for its exclusion.

**Response:**

Table 2.2-1, "Mechanical System Scoping Results," page 2-19 of the application, indicates that Fire Protection Systems are included in the scope of license renewal, and are discussed in Section 2.3.3.7.

Section 2.3.3.7, "Fire Protection System," page 2-66 of the application, under "System Description" states:

"The term "fire protection system" refers to the integrated complex of components and equipment provided for detection and suppression of fires."

"The fire protection system detects the presence of smoke or excessive heat in designated plant areas, provides local alarms, control room annunciation horn and printed record, and suppression system activation."

"Heat and smoke detection is accomplished by the appropriate detectors installed in areas where fire potential exists and in all areas containing safety-related equipment except where a specific exemption was granted by the NRC."

Section 2.5, "Scoping and Screening Results: Electrical and Instrumentation and Controls," page 2-130 of the application states:

"This section presents the results of the scoping and screening processes for electrical and instrument and control (I&C) components, and the station blackout system.

The components comprising the station blackout system were reviewed and the passive, long-lived components subject to an aging management review were identified.

For all other electrical and I&C components, the passive, long-lived electrical components subject to an aging management review were identified as commodities."

Specifically, for the fire protection detection and alarm system, this would include insulated cables and connections (connectors, splices, and terminal blocks). As stated in Section 2.5.1, "Cables," page 2-132, under "Description," "Cable insulation material groups were assessed on the basis of common materials and their respective material aging characteristics for both safety-related and non-safety-related cables."

Therefore, based on the above, Table 2.2-3 does not reference Fire Detection and Alarm because its passive, long-lived electrical components were included as within scope of license renewal within Table 2.2-1, and subject to an AMR. The in-scope temperature and smoke detectors, fire system alarms, controls, etc., are active components and, therefore, not listed in Section 2.2 and do not require an AMR.

**RAI 2.3.3.7-3.** Section 2.4 identifies the fire resistance function of reinforced concrete walls, slabs, columns and beams, and reinforced concrete block walls, but not for any structural steel columns or beams. Table 3.5-14, "Aging Management Review Results for Hazard Barriers and Elastomers," identifies cementitious fire proofing (spray-on fire proofing) as a material of construction associated with fire wraps. The staff believes that cementitious fire proofing may have been applied to structural steel members serving as part of fire barriers, and if so, it should be included within the scope of license renewal and subject to an AMR. Identify, for each structure in LRA Section 2.4, if fire resistive coatings have been applied to structural steel members serving as part of fire barriers and if they are within the scope of license renewal and subject to an AMR. If fire resistive coatings are present but not in scope and subject to an AMR, please provide a justification for their exclusion.

**Response:**

Fire resistive coatings have been applied to structural steel beams on a limited basis in the reactor building, turbine building and main control room complex, and radwaste building and auxiliary bay. The resistive coatings are within the scope of license renewal and subject to an

AMR. These coatings are evaluated with the "Hazard Barriers and Elastomers" commodity group described in LRA Section 2.4.14, instead of each individual structure. The fire resistive coatings are listed as "Fire Wraps" in Table 2.4-14 and 3.5-14. Their aging management is included in the scope of "Fire Protection Activities" as described in the LRA Appendix B.2.9.

**RAI 2.3.3.7-4.** LRA Section B.2.9, "Fire Protection Activities," refers to functionally testing a representative sample of sprinkler heads for flow blockage and verification of proper operation. NFPA-25, "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," in Section 2-3, "Testing" (and formerly in NFPA 13 when these systems were installed), requires a sample of not less than four sprinklers or one percent (whichever is greater) of the number of sprinklers per individual sprinkler sample. The standard further requires the testing be done by a recognized testing laboratory, and that the testing be repeated at 10-year intervals. The testing is intended to verify the operability (operating temperature) of the fusible element as well as the ability of the orifice to open upon the fusing of the head. The standard requires that if one head fails, all the heads represented by that sample shall be replaced.

NFPA-25 also requires that the testing of fast response heads which have been in service for 20 years. Appendix B.2.9 only references NFPA-24, "Standard for Outside Protection," 1970 edition. Please verify that no fast-response sprinklers have been installed in fire protection systems within the scope of the application, or provide a discussion of how the requirements of NFPA-25 will be addressed.

**Response:**

There are no fast-response sprinklers installed in fire protection systems in the scope of license renewal.

**RAI 2.3.3.7-5.** Reference is made in the Fire Protection Program document to some heat detectors as being non-restorable. NFPA-72, "National Fire Alarm Code," requires testing of a sample of non-restorable heat detectors after 15 years of service (see NFPA-72, Table 7-2.2 item 13.3.) No reference is made to heat detector testing in B-2.9. If non-restorable heat detectors are installed in areas within the scope of this application, identify where they are installed and how they are to be incorporated in the aging management plan.

**Response:**

Heat detectors (temperature sensors) are considered per NEI 95-10, Rev. 3 Appendix B, and NUREG-1800 "Standard Review Plan (SRP) for Review of License Renewal Applications for Nuclear Power Plants", dated July, 2001, SRP Table 2.1-5, page 2.1-20, with a "YES for a pressure boundary if applicable (PB only)". The "(PB only)" indicates that the only function of concern in license renewal related to these elements and sensors is if there is a pressure boundary involved. Exelon agrees with the position in NEI 95-10, Appendix B, and SRP Table 2.1-5, that sensors do not perform any electrical function without moving parts or a change in configuration or properties, and, therefore, do not meet the requirements of 10CFR54.21(a)(1)(i). Therefore, heat detectors are not subject to an aging management

review.

**RAI 2.3.3.7-6.** UFSAR Section 5.2 "Primary Containment", sub-section 5.2.2, "Safety Design Basis", item 13 on page 5.2-2 (Rev. 16 - 04/99) states:"The primary containment is provided with a hardened (pipe) vent to be used in the event of a long term loss of the RHR cooling of the Torus water. The scenario is beyond the current licensing basis of the plant and is called the TW Sequence as defined by the BWR Owner's Group. The vent is a direct path from primary containment to the atmosphere."

Table 7.2-2a, "Fire Issue Resolution", identifies containment venting as required for fire area response in multiple areas. Specifically, venting is identified for Fire Area 1B (Unit 2); 6S (Unit 2 and Unit 3); 12B (Unit 3), 13S (Unit 3); and 39 (Unit 2 and Unit 3). Provide the bases for excluding components of the torus hardened vent from the scope of license renewal even though the containment venting intended function is cited for Appendix R post-fire safe shutdown for fires in the above-identified fire areas at PBAPS.

**Response:**

Torus venting is discussed in the FPP in order to summarize an Exelon response to a generic letter (a recommended practice for documenting licensing bases). In this case, it is discussed in response to Generic Letter 88-20 Supplement 4, which required each plant to perform various risk analyses, including a fire risk analysis, with results provided to the NRC (10CFR50.54(f)). The torus hardened vent falls within the discussion provided in Section 6.4 of the FPP, "Procedural guidance for contingency actions to restore additional plant equipment beyond that required for strict Appendix R compliance in certain fire areas."

The torus hardened vent is not a system that falls within the scope of systems used to satisfy 10CFR50.48. Systems analyzed to achieve compliance with Appendix R (and thereby 10 CFR 50.48) are described in FPP section 5.2.2, and components are listed in FPP Table A-3. The torus hardened vent does not appear in either of these sections.

**RAI 2.3.3.7-7.** Table 2.3.3-7 lists the components which are subject to an AMR. Some components of the carbon dioxide suppression system are not included in this table, such as carbon dioxide discharge nozzles and discharge piping. The staff believes that these components are passive and long-lived and therefore subject to an AMR. These components are not pressure boundaries but are subject to a variety of internal and external environments. Include these components in the scope of the license renewal application or provide the technical justification for their exclusion.

**Response:**

License Renewal drawing LR-M-318, Sheet 4, shows that the discharge piping and discharge nozzles for the Carbon Dioxide Suppression System are in the scope of license renewal. Table 2.3.3-7, "Component Groups Requiring Aging Management Review – Fire Protection System," page 2-68 of the application, does list piping in a dry gas environment, and discharge nozzles

under "piping specialties" in a dry gas environment. There are two (2) intended functions listed. The intended functions are "pressure boundary" and "spray". The environment identified as "dry gas" is applicable to carbon dioxide. This would be an internal environment. The external environment would be "sheltered".

These components were included in an aging management review (AMR) for their specific environments, and are in the scope of license renewal. The AMR did not distinguish between portions of the piping system constantly under pressure, and those not under pressure.

**Control Room Ventilation System (Section 2.3.3.8)**

**RAI 2.3.3.8-1** The staff believes that the areas that constitute the main control room envelope (MCRE) perform intended functions such as cooling and filtration (in order to maintain the control room habitability (CRH) and meet Appendix A to 10 CFR 50, General Design Criteria (GDC) 19). In addition, the staff does not believe that the boundary for the MCRE has been adequately delineated. Verify that all control room ventilation system (CRVS) components (including housings of air handling units and fan coil units with their associated ductwork, housings of fire damper and control valves, air intake, and housings of exhaust fans with purge ductwork) inside the MCRE, which are relied on to perform the safety related cooling/ventilation intended functions are identified to be within the scope of license renewal and subject to an AMR on drawing LR-M-384 and in Table 2.3.3.8 of the application. If a component is not within the scope and subject to an AMR, provide justification for its exclusion.

**Response:**

As indicated in LRA Section 2.3.3.8, the intended functions of the Control Room Ventilation System are Control Room Isolation and Filtration and Ventilation. The components that are required to perform these intended functions are identified as in scope on license renewal drawings LR-M-384 sheets 1, 2 and 3. The components, including component housings, subject to an aging management review are identified in LRA Table 2.3.3-8.

Heating coil enclosures were inadvertently omitted from the LRA tables. The LRA tables will be revised to include these coil enclosures, as described in the response to RAI 2.3.3.8-2, below.

**RAI 2.3.3.8-2.** LRA Table 2.3.3-8 does not identify the components and their housings listed below, although these components, including their housings, support the intended function of the CRVS to comply with the requirements of the Appendix A to 10 CFR 50, GDC 19. These components are shown on drawing LR-M-384, sheet 1, as being within the scope of license renewal, but are not listed in Table 2.3.3-8 of the LRA. Provide a justification for the exclusion of these components and their housings from being subject to an AMR.

Housings and components excluded are:

- Reheat coil 00E072, drawing LR-M-384, sheet 3, location H2.

- Thermowell for temperature transmitter TT00174, drawing LR-M-384, sheet 3, location H2.
- Louver, drawing LR-M-384, sheet 1, location D8.
- Preheat coil 00E068, sheet 1, location D7.
- High efficiency particulate air (HEPA) filters OAF041, drawing LR-M-384, sheet 1, location G6 and OBF041, location F6.
- HEPA filters OAF050, drawing LR-M-384, sheet 1, location G5 and OBF050, location F5.

If the filter media for the components identified above were excluded on the basis that these media components are routinely replaced (consumables), describe the plant-specific monitoring program and the specific performance standards and criteria for periodic replacement.

**Response:**

Heating coil enclosures (reheat and preheat coils) were inadvertently omitted from the LRA tables. These components should be included in LRA Table 2.3.3-8 as shown below:

Table 2.3.3-8 Component Groups Requiring Aging Management Review - Control Room Ventilation System

| Component Group | Component Intended Function | Environment |
|---|---|---|
| Casting and Forging<br>• Valve Bodies | • Pressure Boundary | Sheltered, Ventilation Atmosphere |
| Elastomer<br>• Filter Plenum Access Door Seals<br>• Fan Flex Connections | • Pressure Boundary | Sheltered, Ventilation Atmosphere |
| Piping<br>• Pipe<br>• Tubing | • Pressure Boundary | Sheltered, Ventilation Atmosphere |
| Piping Specialties<br>• Flow Elements | • Pressure Boundary | Sheltered, Ventilation Atmosphere |
| Sheet Metal<br>• Ducting<br>• Damper Enclosures<br>• Plenums<br>• Fan Enclosures<br>• Heating Coil Enclosures | • Pressure Boundary | Sheltered, Ventilation Atmosphere |

| Component Group | Component Intended Function | Environment |
|---|---|---|
| Sheet Metal<br>• Louvers | • Throttle | Ventilation Atmosphere |

These components should be included in LRA Table 3.3-8 as shown below:

Table 3.3-8 Aging Management Review Results for Component Groups in the Control Room Ventilation System

| Component Group | Component Intended Function | Environment | Materials of Construction | Aging Effect | Aging Management Activities |
|---|---|---|---|---|---|
| Casting and Forging<br>• Valve Bodies | • Pressure Boundary | Sheltered, Ventilation Atmosphere | Stainless Steel, Brass | None | • Not Applicable |
| Elastomer<br>• Fan Flex Connections | • Pressure Boundary | Sheltered, Ventilation Atmosphere | Fiberglass Impregnated Neoprene | Change in Material Properties | • Ventilation System Inspection and Testing (B.2.3) |
| Elastomer<br>• Filter Plenum Access Door Seals | • Pressure Boundary | Sheltered, Ventilation Atmosphere | Sponge Neoprene Rubber | Change in Material Properties | • Ventilation System Inspection and Testing (B.2.3) |
| Piping<br>• Pipe<br>• Tubing | • Pressure Boundary | Sheltered | Carbon Steel, Copper, Stainless Steel | None | • Not Applicable |
| Piping<br>• Pipe | • Pressure Boundary | Ventilation Atmosphere | Carbon Steel | None | • Not Applicable |
| Piping<br>• Tubing | • Pressure Boundary | Ventilation Atmosphere | Copper, Stainless Steel | None | • Not Applicable |
| Piping Specialties<br>• Flow Elements | • Pressure Boundary | Sheltered, Ventilation Atmosphere | Stainless Steel | None | • Not Applicable |
| Sheet Metal<br>• Ducting<br>• Damper Enclosures<br>• Plenums<br>• Fan Enclosures<br>• Heating Coil Enclosures | • Pressure Boundary | Sheltered | Carbon Steel, Galvanized Steel | None | • Not Applicable |
| Sheet Metal<br>• Plenums<br>• Fan Enclosures | • Pressure Boundary | Ventilation Atmosphere | Carbon Steel | None | • Not Applicable |
| Sheet Metal<br>• Louvers | • Throttle | Ventilation Atmosphere | Galvanized Steel | None | • Not Applicable |
| Sheet Metal<br>• Ducting<br>• Damper Enclosures<br>• Heating Coil Enclosures | • Pressure Boundary | Ventilation Atmosphere | Galvanized Steel | None | • Not Applicable |

There is no thermowell for temperature transmitter TT00174. The temperature element is a capillary type and penetrates the ventilation duct through a bulkhead type fitting. The bulkhead fitting is considered as part of the ventilation ducting hardware for license renewal.

The louver shown on drawing LR-M-384, sheet 1, location D8, is mounted in a wall opening at the ventilation intake and does not include any pressure boundary housing or enclosure.

The filter media for the components identified above are replaced on condition and are not subject to aging management review. Periodic testing and inspection programs are in place to monitor filter performance such that system intended functions are maintained. The filters are monitored during the annual filter train surveillance tests, including verification of acceptable maximum differential pressure. System filters are replaced as conditions warrant; therefore, an aging management review is not required.

**RAI 2.3.3.8-3.** LRA Table 2.3.3-8 does not identify test connections shown on drawing LR-M-384, sheet 1, locations D1 [total three (3)], F1 [total three (3)], F5 [total three (2)], F6 [total two (2)], G2 [total one (1)], G4 [total two (2)], D2 [total one (1)], D3 [total one (1)], D5 [total three (3)], and D6 [total three (3)]. Provide justification for the exclusion of these test connections from Table 2.3.3-8 of the LRA to indicate that these are not subject to an AMR.

**Response:**

The test connections are included in the scope of license renewal and are subject to an AMR. The test connections are included with and evaluated as part of the ventilation ducting. The test connections are considered as part of the ventilation ducting hardware for license renewal.

**RAI 2.3.3.8-4.** Clarify whether sealant materials at Peach Bottom APS Units 2 and 3 used to maintain the MCRE at positive pressure with respect to the adjacent areas in order to prevent the unfiltered inleakages inside MCRE, are included in the scope of license renewal and subject to an AMR, and if so, provide the relevant information to complete Table 2.3.3.8 of the LRA. If the sealants are not considered subject to an AMR, provide justification for their exclusion.

**Response:**

Sealant materials are included as a commodity item in LRA Section 2.4.14, "Hazard Barriers and Elastomers," Table 2.4-14.

**RAI 2.3.3.8-5.** Appendix A to 10 CFR 50, GDC 19 requires cooling and protection against radiation and toxic gas in order to achieve and maintain control room envelope habitability during and after an accident. Clarify whether the following main control room cooling system components and their associated housings are within the scope of license renewal and subject to an AMR in order to provide a safety-related cooling function.

Drawing LR-M-384, sheet 2

- Supply fans, OAV028 at location F6, and OABV028 at location C5.
- Cooling coil, OAE069 at location F5, and OBEV069 at location C5.
- Supply roll filter, OOF038 at location E3.
- Bag filter, OOF057 at location E4.
- Prefilter coil, OOE110 at location F2.
- Louver at location F1.
- Ductwork, dampers, and instrumentation tubings and valves.
- Return air fans, OAV027 at location C7, and OBV029 at location A7.
- Closed cooling control room ventilation, fan, OOV326 at location C4.
- Filter, OOF327 at location C3
- Control room ventilation reheat coil, OOE072 at location H2.
- Balance damper at locations F7 and G7.
- Control room toilet exhaust fan, OOV033 at location G8
- Ductwork, dampers, and instrumentation tubings and valves.

If components and their associated housings identified above were excluded from the scope of license renewal and not subject to an AMR, provide justification for their exclusion.

**Response:**

As indicated on License Renewal Drawing Legend LR-M-300, License Renewal Drawing Note 1, the highlighted portion of the license renewal drawing identifies the components in the scope of license renewal. Highlighting is by use of heavy lines to indicate the in-scope systems, structures and components. With the single exception of the reheat coil 00E072, none of the above-identified components are highlighted on the license renewal drawing and none are in the scope of license renewal. The reheat coil 00E072 is addressed in the response to RAI 2.3.3.8-2, above.

As indicated in LRA Section 2.3.3.8, the intended functions of the Control Room Ventilation System are Control Room Isolation and Filtration and Ventilation. The components identified in this RAI are not required to support these system intended functions and are therefore not in the scope of license renewal.

**Battery and Emergency Switchgear Ventilation System (Section 2.3.3.9)**

**RAI 2.3.3.9-1.** LRA Table 2.3.3-9 does not list the heating coils and its housings 0AE073 and 0BE073 as being subject to an AMR, although these components are shown on drawing LR-M-399, sheet 1, locations F5 and C5, as being within the scope of license renewal. These components provide a passive boundary function for the Battery and Emergency Switchgear Ventilation System. Provide justification for the exclusion of the above components from Table 2.3.3-9 of the LRA.

**Response:**

The subject heating coils are steam heating coils that are installed inside the fan unit (0AV034, 0BV034) enclosure housing. These components do not provide a passive boundary function for the Battery and Emergency Switchgear Ventilation system. The fan enclosures (housings) are included in LRA Table 2.3.3-9.

**RAI 2.3.3.9-2.** The system description for the Battery and Emergency Switchgear Ventilation System in LRA Section 2.3.3.9 states that one of the two battery room exhaust fans discharge air from the battery rooms at the radwaste building roof. However, drawing LR-M-399, sheet 4, location G4, shows that the exhaust from the battery room fans is discharged from the control room roof. If the exhaust air from the battery room exits from the radwaste building roof as stated, then the radwaste exhaust vent should be identified on drawing LR-M-399, sheet 4 location B3, as being within the scope of license renewal and subject to an AMR. Clarify the above discrepancy.

**Response:**

The radwaste exhaust vent and the ducting leading to it are in the scope of license renewal and have undergone aging management review. These components (ducting and exhaust hoods) are included in LRA Table 2.3.3-9. The license renewal drawing LR-M-399, sheet 4 is in error, and will be revised to identify this exhaust vent and associated ducting as in-scope.

**Diesel Generator Building Ventilation System (Section 2.3.3.10)**

**RAI 2.3.3.10-1.** LRA Table 2.3.3-10 does not list the housings of the unit heaters identified in drawings OAE097 @ F5, OBE097 @ F4, OCE097 @ E5, ODE097 @ E4, OEE097 @ E5, OFE097 @ E4, OGE097 @ D5, OHE097 @ D4, OAE140 @ G5, and OBE140 @ F5.

If the components and their associated housings identified above were excluded from the scope of license renewal and not subject to an AMR, provide justification for their exclusion.

**Response:**

The identified unit heaters are not in the scope of license renewal. These components are not identified as in-scope on license renewal drawing LR-M-392. As indicated in LRA Section 2.3.3.10, the system intended functions are Ventilation and Cooling. Heating is not a required intended function of the Diesel Generator Building Ventilation System. These unit heaters are not safety-related and do not have any intended functions for license renewal.

**Pump Structure Ventilation System (Section 2.3.3.11)**

**RAI 2.3.3.11-1.** LRA Section 2.3.3.11, page 2-76, identifies both Emergency Service Water (ESW) pumps and High Pressure Service Water (HPSW) pumps as being ventilated and cooled by the Pump Structure Ventilation System. Similarly, UFSAR Section 10.14.3.3, page 10.14-2, Rev. 17, 04/00, describes the ESW/HPSW compartment as housing the HPSW pumps, ESW pumps, fire pumps and service water screen wash pumps.

However drawing LR-M-392, sheet 1, at locations C4 and C5, shows four pump structure compartments identified as being in the scope of license renewal. Two of these compartments are labeled "Emerg. Water Pumps", for units 2 and 3. Each compartment is shown as containing two intake and two exhaust fans, plus a unit heater. Please clarify whether these are the compartments described in the LRA and the UFSAR as housing the HPSW pumps, ESW pumps, fire pumps and service water screen wash pumps. The other two compartments are identified as "Circ. Water Pumps". Please identify all of the components contained in these four compartments that are within the scope of license renewal and confirm whether they are cooled by the Pump Structure Ventilation System.

**Response:**

Drawing LR-M-392 sheet 1 provides a schematic representation of the pump structure for purposes of identifying the ventilation system flow paths. The compartment identified as "Emerg. Water Pump" on drawing LR-M-392 sheet 1 is the same compartment as described in UFSAR Section 10.14.3.3. As stated in the LRA and the UFSAR, the Pump Structure Ventilation System cools this compartment containing all of the subject pumps. As described in LRA Section 2.3.3.11, each compartment includes two supply fans, two exhaust fans, and one unit heater.

The two compartments identified as "Circ. Water Pumps" are in the scope of license renewal for structural considerations, but do not contain any components in the scope of license renewal that require ventilation or cooling.

**RAI 2.3.3.11-2.** LRA Table 2.3.3-11 does not list the housings of the unit heaters shown on drawing LR-M-392, sheet 1, one at location C3, two at location C4, two at location C5, and one at location C6.

Also LRA Table 2.3.3-11 does not list housings of exhausters shown on drawing LR-M-392, sheet 1, 0AV062 at location D6, 0BV062 at location D5, 0CV062 at location D5, 0DV062 at location D3, 0EV062 at location D3, and 0FV062 at location D4.

If these components and their associated housings identified above were excluded from the scope of license renewal and not subject to an AMR, provide justification for their exclusion.

**Response:**

As indicated on drawing LR-M-300 sheet 1, in License Renewal Note 1, the in-scope components are identified by the use of heavy lines (highlighting). The unit heaters are not identified as in the scope of license renewal on drawing LR-M-392 sheet 1. As identified in LRA Section 2.3.3.11, the intended functions of the Pump Structure Ventilation System are Ventilation and Cooling. The system does not have an intended function for room heating, so the unit heaters are not required to support the system intended function. The unit heaters are not in the scope of license renewal and not subject to an AMR.

The roof exhausters are not identified as in the scope of license renewal on drawing LR-M-392 sheet 1. The roof exhausters are associated with the circulating water pump rooms. The circulating water pump rooms do not contain any safety-related pumps. Cooling or ventilation of the circulating water pump rooms is not an intended function of the Pump Structure Ventilation System. The circulating water pump room roof exhausters are not safety-related and are not required to support any intended functions. The roof exhausters are not in the scope of license renewal and not subject to an AMR.

**Safety Grade Instrument Gas (Section 2.3.3.12)**

**RAI 2.3.3.12-1.** UFSAR Section 10.17.5 (page 10.17-5), it states that, "The containment atmosphere dilution system purge and vent valves are supplied with separate safety grade pneumatic supplies to the inflatable seals to maintain their leaktight condition." Additionally, the UFSAR states that one of the suppression chamber-to-secondary containment vacuum breaker air-operated valves (one on each unit) is supplied with an inflatable valve seal. On drawing LR-M-367 (locations A-7 and E-2), the inflatable valve seals are not shown to be within the scope of license renewal. Please clarify why these valve seals are not within the scope of license renewal.

**Response:**

The inflatable valve seals are part of the valve internals and function with the valve disc to prevent flow through the valve. As such, these seals do not perform a pressure boundary function for license renewal that is subject to aging management review. This is in accordance with NUREG-1800 Table 2.1.5 item 111.

**RAI 2.3.3.12-2.** On drawing LR-M-367, "Containment Atmospheric Control System," piping components such as reducers and increasers (various locations) are shown as within the scope of license renewal. However, Table 2.3.3-12 on page 2-78 of the LRA does not specifically list these components. Please clarify if these piping components are included in the category of "pipe." If not, please explain why these components are not subject to an AMR.

**Response:**

The reducers and increasers are fittings and part of the piping system. As described in the LRA, section 3.0, page 3-3, the component group of piping includes piping, tubing and fittings. Thus, reducers and increasers are included in the "Pipe" component group listed in LRA Table 2.3.3-12.

**Backup Instrument Nitrogen to ADS System (Section 2.3.3.13)**

**RAI 2.3.3.13-1.** On drawing LR-M-333 sheets 1 and 2, piping components such as weld caps (location A3), reducers and increasers (various locations) are shown to be within the scope of license renewal. However, these piping components are not listed in Table 2.3.3-13 as requiring and AMR. Please clarify if these components are included within the component group "pipe."

**Response:**

The reducers, increasers and weld caps are fittings and part of the piping system. As described in the LRA, section 3.0, page 3-3, the component group of piping includes piping, tubing and fittings. Thus reducers, increasers and weld caps are included in the "Pipe" component group listed in LRA Table 2.3.3-13.

**RAI 2.3.3.13-2.** In Section 2.3.3.13 of the LRA (page 2-79), it states that the backup nitrogen supply to the ADS system consists of a split ring header with a seismic Category 1 bottle rack, etc. The bottle rack is not mentioned in sections 4.4 or 10.17 of the PBAPS UFSAR, nor is it shown on drawings LR-M-333 and LR-M-351. Additionally, the bottle rack is not listed in Table 2.3.3-13 as requiring an AMR. This component was not found by searching other possible sections of the LRA. Please identify the LRA reference where this component is listed as being subject to an AMR, or explain why the bottle rack does not require an AMR.

**Response:**

Bottle racks are included in component support group as indicated in the description paragraph in section 2.4.13.

**RAI 2.3.3.13-3**On page 4.4-8 of the PBAPS UFSAR it states, "Containment isolation is provided

for safety grade pneumatic supply lines into containment by use of check valves and other automatic valves outside containment." In Table 2.3.3-13, although valve bodies are listed, containment isolation is not listed as a component function. Please clarify whether this function should be included in the table.

**Response:**

Containment isolation function is a system function, which is used to bring the system in the scope of license renewal. The component level functions are defined in the Table 2.1-1, Component Intended Functions. As described in the table, pressure boundary function includes providing containment isolation for fission product retention.

**Emergency Cooling Water System (Section 2.3.3.14)**

**RAI 2.3.3.14-1.** On drawing LR-M-330, sheet 1, two insulating fittings (location E3), a temporary strainer (location E6), and numerous reducers, increasers and flanges are shown as being within the scope of license renewal. The staff believes that the fittings, strainers, flanges, increasers and reducers should be subject to an AMR. However, these components are not listed in Table 2.3.3-14 of the LRA. Please indicate if these components are subject to an AMR by adding them to Table 2.3.3-14, or provide a justification for their exclusion.

**Response:**

The reducers, increasers, fittings and flanges are fittings and part of the piping system. As described in the LRA, section 3.0, page 3-3, the component group of piping includes piping, tubing and fittings. Thus reducers, increasers, fittings and flanges are included in the "Pipe" component group listed in LRA Table 2.3.3-14.

The temporary strainer was a start-up strainer that is no longer installed and the flanges as stated above are included in the "pipe" component group.

**RAI 2.3.3.14-2.** On drawing LR-M-330, sheet 1, the discharge pond (location A7/A8) is shown as being within the scope of license renewal. However, the discharge pond is not shown as being within the scope of license renewal on Site Plan LR-S-001, or in Table 2.2-2. Please clarify the status of the discharge pond. If the discharge pond is not included in the scope of license renewal and subject to an AMR, provide the justification for its exclusion.

**Response:**

The discharge pond does not perform any license renewal intended function. It appears highlighted in the boundary drawing. The boundary drawing will be revised to remove the highlighting from drawing LR-M-330, sheet 1. The structural site plan is the right drawing to use

for the discharge pond and it does reflect that the discharge pond is not in scope of license renewal.

**Condensate Storage System (Section 2.3.3.15)**

**RAI 2.3.3.15-1.** The staff believes that the condensate storage system has a safety-related current licensing basis function to provide a backup source of water to the control rod drive system. UFSAR Section 3.4.5 states: "In the event that the flow from the condensate system is interrupted at any time, the condensate storage tank provides a backup source to ensure CRDS operability without operator action being required. " Please provide the basis why this intended function is not included in Section 2.3.3.15 of the LRA.

**Response:**

The only safety-related intended functions of the control rod drive system in the PBAPS current licensing basis is the control rod scram function and the alternate rod insertion function. These intended functions are described in LRA Section 2.3.3.3. Neither of these intended functions requires operability of the control rod drive system water pumps and therefore also do not require a suction source for the pumps.

The scram accumulator stores sufficient energy to fully insert a control rod independent of any other source of energy. The accumulator consists of a water volume pressurized by nitrogen. The accumulator has a piston separating the water on top from the nitrogen below. A check valve in the charging line to each accumulator prevents loss of water in the event supply pressure is lost. The scram accumulator provides the required energy to rapidly insert the control rod for both the control rod scram intended function and the alternate rod insertion intended function. The control rod drive system water pumps are not required to perform these safety-related intended functions.

The function of the condensate storage tank to provide a backup source to the control rod drive system is a function that supports normal control rod drive system operation, but this function is not a safety-related intended function. The condensate storage system does not have a safety-related current licensing basis function at PBAPS.

**RAI 2.3.3.15-2.** As stated in RAI 2.3.3.15-1, the staff believes that the condensate storage system has a safety-related function. Therefore, please provide the basis for the pipes that connect to the condensate storage tank at a low elevation on P&ID drawing LR-M-309 being considered out-of-scope. In addition, please provide the basis for the freeze protection piping (from the Auxiliary Heating/Steam Supply System) which support the function of the condensate storage tank being considered out-of-scope.

**Response:**

The condensate storage system, including the condensate storage tank and connected piping, does not have a safety-related current licensing basis function at PBAPS. See the response to

RAI 2.3.3.15-1, above.

**Emergency Diesel Generator (Section 2.3.3.16)**

**RAI 2.3.3.16-1.** Several Emergency Diesel Generator components are identified on the LR drawings as being within the scope of license renewal, but are not identified as being subject to an AMR. The staff believes that these components should be subject to an AMR. Identify whether the following components are subject to an AMR, and if so, provide the relevant information about the components to complete Table 2.3.3-16. If a component is not subject to an AMR, provide a justification for its exclusion:

On P&ID LR-M-377 sheet 3 (Lube Oil System)

- The turbo chargers (location E6)
- Lube oil standby heater (casing) (location C7), and
- Lube oil filter (housing) (location E3)

On P&ID LR-M-377 sheet 4 (Diesel Fuel Oil System)

- Reducers and sample connections (example location B7)
- Spare weld caps (example location B7), and
- Filters (housing) (example location D3)

On P&ID LR-M-377 sheet 5 (Combustion Air Intake/Exhaust System)

- Diesel generator crank case (location D6)

**Response:**

1. Components on P&ID LR-M-377 sheet 3 (Lube Oil System)

The turbo chargers (location E6) are within the scope of license renewal pursuant to 10CFR54.4 (a)(1), but not subject to aging management review. The turbo chargers are a part of the diesel generators, which according to 10CFR 54.21 and the associated Statements of Consideration (SOC) perform an active function (excluding structural supports) and can be excluded from aging management review.

The lube oil standby heater (casing) (location C7) is within the scope of license renewal. The heater casing performs the pressure boundary passive intended function, thus is subject to aging management review. The heater casing was inadvertently omitted from LRA Table 2.3.3-16 and the corresponding aging management review results. We have also noted that the jacket coolant standby water heater (casing) shown on drawing LR-M-377 sheet 2 (location B2)

is not listed in Table 2.3.3-16. Table 2.3.3-16 therefore requires the following additions:

| Component Group | Component Intended Function | Environment |
|---|---|---|
| Heat Exchanger<br>• EDG Lube oil standby heater (casing) | • Pressure boundary | Lubricating oil, Sheltered |
| Heat Exchanger<br>• EDG Jacket Coolant standby Water Heater (casing) | • Pressure boundary | Closed Cooling Water, Sheltered |

The casing for both heaters is fabricated from carbon steel material, which is susceptible to loss of material aging effect in the lubricating oil and Closed Cooling Water (CCW) environments. Oil Quality Testing aging management activity will be credited for managing the loss of material for lube oil standby heater casing. CCW Chemistry aging management activity will be credited for managing the loss of material aging effect of the jacket coolant standby water heater casing.

Lube oil filter (housing) (location E3) is within the scope of license renewal and subject to aging management. The filter is included in the casting and forging component group (strainer bodies) listed in Table 2.3.3-16.

2. Components on P&ID LR-M-377 sheet 4 (Diesel Fuel Oil System)

Reducers and sample connections (example location B7) are in scope of license renewal and subject to aging management review. The reducers are a part of the emergency diesel generator fuel oil storage tank and are included in the vessel component group listed in Table 2.3.3-16. The sample connections are included in the piping component group listed in Table 2.3.3-16.

Spare weld caps (example location B7) are in scope of license renewal and subject to aging management review. The caps are considered pipe fittings and included in the piping component group listed in Table 2.3.3-16.

Filters (housing) (example location D3) are within the scope of license renewal, but not subject to aging management review. The filters are a part of the diesel generators, which according to 10CFR 54.21 and the SOC perform an active function (excluding structural supports) and can be excluded from aging management review.

3. Components on P&ID LR-M-377 sheet 5 (Combustion Air Intake/Exhaust System)

The diesel generator crank case (location D6) is within the scope of license renewal, but not subject to aging management review. The crank case is a part of the diesel generator, which according to 10CFR 54.21 and the SOC perform an active function (excluding structural supports) and can be excluded from aging management review.

**RAI 2.3.3.16-2.** Please clarify if the housing of the blower air filter, shown on drawing LR-

M-377 sheet 5 (location F8), and the scavenging air blower, shown at location E8 serve as pressure boundaries. If so, please explain why these components have not been included in Table 2.3.3-16. If these components are not subject to an AMR, provide the justification for their exclusion.

**Response:**

The blower air filter housing (example location D8, LR-M-377 sheet 5) and scavenging air blower housing (location E8) are within the scope of license renewal, but not subject to aging management review. The filter housings are a part of the diesel generators, which according to 10CFR 54.21 and the SOC perform an active function (excluding structural supports) and can be excluded from aging management review.

**Suppression Pool Temperature Monitoring System (Section 2.3.3.17)**

**RAI 2.3.3.17-1.** In Section 2.3.3.17 of the LRA, the applicant states that the suppression pool temperature monitoring system boundaries are identified on license renewal drawing LR-M-361. However, the staff is unable to find the components of this system on the drawing, and nor do the notes accompanying this drawing (note 1, at location B1) list this system as being shown on this drawing. Please provide a correct drawing reference that identifies the components of this system.

**Response:**

As stated in the LRA, the license renewal reference drawing for the Suppression Pool Temperature Monitoring system (SPOTMOS) is LR-M-361. The majority of the components in this system are active and not subject to an AMR. As indicated in LRA Table 2.3.3-17, the only components subject to aging management review are the penetration sleeves (or thermowells) in the torus shell. These thermowells are associated with temperature elements that are shown on the LR-M-361 drawings. The SPOTMOS temperature elements 2-71A1, B1, C1, D1, E1, F1, G1, H1, J1, K1, L1, M1, N1 and 2-71A2, B2, C2, D2, E2, F2, G2, H2, J2, K2, L2, M2, N2 are shown on drawings LR-M-361 sheet 1 zone C-3, sheet 2 zone D-7, sheet 3 zone C-3 and sheet 4 zone D-7.

These temperature elements were inadvertently shown out of scope on the referenced license renewal boundary drawings. These temperature elements will be identified as in scope on the license renewal boundary drawings for identification of the associated thermowells that are subject to an AMR. The Suppression Pool Temperature Monitoring system will be added to the list of included license renewal systems in drawing Note 1. The system flag for this system is ST.

**Cranes and Hoists (Section 2.3.3.18)**

**RAI 2.3.3.18-1.** In Section 2.3.3.18, the applicant provides a brief description of the cranes and hoists. Table 2.3.3-18 contains (a) the circulating water pump structure crane, (b) reactor building overhead bridge cranes, and (c)

other cranes and hoists. The term "other cranes and hoists" is very general and not amenable to a review. The UFSAR contains references to several cranes and hoists such as the Turbine Building cranes, Emergency Diesel Generator cranes, Overhead Bridge cranes, Gantry cranes, and lifting devices/structures like lifting beams and refueling platform frame mounted or monorail hoist. The staff is unable to determine with reasonable assurance whether the applicant has adequately identified the cranes and hoists that are within the scope of license renewal and subject to an AMR. Please provide a list of all cranes and hoists that are in scope and identify those subject to an AMR.

**Response:**

Cranes and hoists within the scope of license renewal, pursuant to 10CFR54.4 (a)(1) or (a)(2), and subject to AMR are listed below.

- Reactor Building Overhead Bridge Cranes
- Turbine Hall Cranes
- Emergency Diesel Generator Bridge Cranes
- Circulating Water Pump Structure Crane, 35-Ton Gantry.
- Emergency Cooling Tower Hoist
- Service Pole Caddy Platform Overhead Hoist
- Equipment Access Airlock Monorail & Hoists
- Southwest Torus Hatch Hoist
- Leveling Tray Hoists
- Personnel Airlock Hoists
- Precoat Material Handling Hoist (Unit 2)
- Fuel Channel Handling Hoists
- CRD Cask Hoists
- CRD Jib Cranes
- Recirculation Pump Motor Hoists
- Recirculation Pump Motor Generator-Set Hoists
- Main Steam Line Relief Valve Removal Hoists
- Turbine Building West Side Vertical Restraint Rigging Hoist
- Turbine Building East Side Vertical Restraint Rigging Hoist
- 1-Ton crane over storage area

**RAI 2.3.3.18-2.** Table 2.3.3-18 lists several components within the scope of license renewal, however, the staff believes the table to be incomplete. Identify whether the following components are subject to an AMR, and if so, provide the relevant information about the components to complete Table 2.3.3-18. If a component is not subject to an AMR, provide a justification for its exclusion:

- Columns
- Baseplates and anchors for attachment to strucutres
- Structural crane components such as bridge girders, columns, trolley rails, baseplates and anchors for attachment to structures

**Response:**

Components identified by the staff are in scope of license renewal and subject to AMR. However, not all of the components are part of the cranes and hoists and thus are not listed in Table 2.3.3-18. Structural crane components such as bridge girders, trolley, trolley rails, crane rails, clips, and bolts are included in the component group listed in Table 2.3.3-18. Crane girders, columns, beams, base plates, and anchors, are a part of the building structural steel and included in "Structural Steel" component group listed in LRA Tables 3.5-1, 3.5-2, 3.5-4, 3.5-5, 3.5-10, or 3.5-11. We note that the content of Table 2.3.3-18 is consistent with NUREG-1801, Section VII B, and the Table on page VII B-3.

**Main Steam System (Section 2.3.4.1)**

**RAI 2.3.4.1-1.** Drawing LR-M-304, "Turbine and Extraction Steam," is referenced in Section 2.3.4.1 as an LR boundary diagram; however, on LR-M-300 sheet 1 it is not listed as being provided. Please provide the subject drawing, or explain why it is not necessary for review.

**Response:**

This drawing reference is in error and will be removed from the LRA. The only components in the scope of license renewal shown on P&ID M-304 are the main condensers, and the condensers are adequately identified as in scope on license renewal boundary drawings LR-M-303 and LR-M-306. There is no license renewal drawing LR-M-304.

**RAI 2.3.4.1-2.** As indicated in Section 2.3.4 of the LRA (page 2-94), and in PBAPS UFSAR Section 14.9, one of the intended functions of the main steam system is post accident containment, holdup and plate out of the MSIV bypass leakage. However, this intended function is not included in Table 2.3.4-1. Please explain why this function has not been included in the table.

**Response:**

The intended function of "containment, holdup and plate out" is considered entirely bounded by the function of "Pressure Boundary" that is included for the applicable components in Table 2.3.4-1 for the Main Steam system. The description of the component intended function for "Pressure Boundary" in LRA Table 2.1-1 includes fission product barrier and fission product retention.

**RAI 2.3.4.1-3.** On drawing LR-M-303 (locations C8, E8, F8), thermowells (without temperature elements) are shown to be within the scope of license renewal, but are not specifically listed as being subject to an AMR in Table 2.3.4-1. The staff believes that these components should be in the scope of license renewal and subject to an AMR. The same is true of thermowells on drawing LR-M-351 sheets 1 and 3 (location G2). Please indicate if these components are subject to an AMR by adding them to Table 2.3.4-1, or provide a justification for their exclusion.

**Response:**

The subject thermowells are in the scope of license renewal and subject to an aging management review. These thermowells were inadvertently omitted from LRA Table 2.3.4-1 and LRA Table 3.4.1. The thermowells will be included under Piping Specialties. In Table 2.3.4-1, thermowells will be added to the existing Piping Specialties row that includes the intended function of "pressure boundary" and the environment of "steam." In Table 2.3.4-1, thermowells will also be added to the existing Piping Specialties row that includes the intended function of "pressure boundary" and the environment of "sheltered." In LRA Table 3.4.1, the thermowells will be added to the existing Piping Specialties row that includes the Y Strainer. In LRA Table 3.4.1, the thermowells will also be added to the existing Piping Specialties row that includes the "Sheltered" environment. The changed LRA Tables are provided as follows:

Section From LRA Table 2.3.4-1:

| | | |
|---|---|---|
| Piping Specialties<br>• Dashpot | • Pressure Boundary | Dry Gas |
| Piping Specialties<br>• Flexible Hoses | • Pressure Boundary | Dry Gas |
| Piping Specialties<br>• Flow Elements<br>• Dashpot<br>• Y Strainer<br>• Condensing Chamber<br>• Restricting Orifice<br>• Flexible Hoses<br>• ***Thermowells*** | • Pressure Boundary | Sheltered |
| Piping Specialties<br>• Flow Elements (body)<br>• Y Strainer<br>• Condensing Chambers<br>• ***Thermowells*** | • Pressure Boundary | Steam |
| Piping Specialties<br>• Flow Elements (throat) | • Throttle | Steam |
| Piping Specialties<br>• Restricting Orifice | • Pressure Boundary<br>• Throttle | Steam |
| Piping Specialties<br>• Spargers | • Spray | Torus Grade Water |

From LRA Table 3.4-1:

| | | | | | |
|---|---|---|---|---|---|
| Piping Specialties<br>• Dashpot | • Pressure Boundary | Dry Gas | Stainless Steel | None | • Not Applicable |
| Piping Specialties<br>• Flexible Hoses | • Pressure Boundary | Dry Gas | Stainless Steel | None | • Not Applicable |
| Piping Specialties<br>• Flow Elements<br>• Dashpot<br>• Y Strainer<br>• Condensing Chamber<br>• Restricting Orifice<br>• Flexible Hoses<br>• ***Thermowells*** | • Pressure Boundary | Sheltered | Carbon Steel, Stainless Steel | None | • Not Applicable |
| Piping Specialties<br>• Flow Elements (body) | • Pressure Boundary | Steam | Carbon Steel | Loss of Material | • RCS Chemistry (B.1.2)<br>• ISI Program (B.1.8) |
| Piping Specialties<br>• Y Strainer<br>• ***Thermowells*** | • Pressure Boundary | Steam | Carbon Steel | Loss of Material | • RCS Chemistry (B.1.2) |
| Piping Specialties<br>• Flow Elements (throat) | • Throttle | Steam | Stainless Steel | Loss of Material | • RCS Chemistry (B.1.2) |

**RAI 2.3.4.1-4.** On drawing LR-M-351 (locations C3 and G4), an expansion joint is shown to be within the scope of license renewal. A review of Section 2.3.2.3, "Primary Containment Isolation System," of the LRA does not indicate that this component has been included for an AMR. Please clarify the intended function of this expansion joint, and whether it requires an AMR. If so, please include it in an appropriate table in the LRA.

**Response:**

These components are included in LRA Table 2.4-1, listed as Penetrations under the Drywell component group. As identified in Table 2.4-1, the intended functions are Pressure Boundary and Fission Product Barrier.

**RAI 2.3.4.1-5.** In Section 2.3.4.1, containment isolation is listed as an intended function, but this function is not listed in Table 2.3.4-1. The containment isolation function is said to be provided by the Primary Containment Isolation System. Please clarify if the containment isolation function should be included as an intended function for various components listed in Table 2.3.4-1.

**Response:**

The containment isolation function identified in LRA Section 2.3.4.1 is a system intended function. The system intended functions are those functions that are the basis for including them within the scope of license renewal as specified in 10CFR54.4(a)(1) through (3). The intended functions identified in Table 2.3.4-1 are component intended functions. The term "component intended function" refers to the specific component, component group or commodity intended function needed to support a system or structure intended function. Component intended functions are identified during the screening process. The list of applicable component intended functions is provided in LRA Table 2.1-1. The containment isolation function identified in LRA Section 2.3.4.1 is a system intended function and not a component intended function, and therefore should not be included in Table 2.3.4-1. The definition of "Pressure Boundary" in LRA Table 2.1-1 includes the containment isolation function.

**RAI 2.3.4.1-6.** License renewal boundary drawing LR-M-303, sheets 1 and 3, indicate that the turbine stop valves are not within the scope of license renewal for Peach Bottom, Units 2 and 3 respectively. On the drawing, the turbine stop valves form the boundary between the piping that is within the scope of license renewal and the piping that is out of scope. If the valve body were to fail, it appears that the piping within the scope of the Rule would be unable to perform its intended function. Please provide the basis for the exclusion of these valves from the scope of license renewal.

**Response:**

The main steam piping downstream of the outboard main steam isolation valves, up to but not including the main steam stop valves, is classified safety-related in the PBAPS current licensing basis. The piping is classified safety-related because the piping provides structural support for the safety-related outboard main steam isolation valves. The main steam stop valves are not safety-related and do not have any safety-related intended functions, and therefore have not been included in the scope of license renewal.

**Feedwater System (Section 2.3.4.3)**

**RAI 2.3.4.3-1.** Section 2.3.4.3 of the LRA provides a listing of the intended functions within the scope of license renewal. On page 2-98 of the LRA, one of the functions listed is containment isolation. However, Table 2.3.4-3 does not list this intended function. Please include this function in the table, or explain why it should not be included.

**Response:**

The containment isolation function identified in LRA Section 2.3.4.3 is a system intended function. The system intended functions are those functions that are the basis for including them within the scope of license renewal as specified in 10CFR54.4(a)(1) through (3). The intended functions identified in Table 2.3.4-3 are component intended functions. The term "component intended function" refers to the specific component, component group or

commodity intended function needed to support a system or structure intended function. Component intended functions are identified during the screening process. The list of applicable component intended functions is provided in LRA Table 2.1-1. The containment isolation function identified in LRA Section 2.3.4.3 is a system intended function and not a component intended function, and therefore should not be included in Table 2.3.4-3. The definition of "Pressure Boundary" in LRA Table 2.1-1 includes the containment isolation function.

**RAI 2.3.4.3-2.** On drawing LR-M-308, reducers and increasers are shown to be within the scope of license renewal. However, these piping components are not specifically listed in Table 2.3.4-3 as requiring an AMR. The staff believes that these components should be subject to an AMR. Please indicate if these components are subject to an AMR by adding them to Table 2.3.4-3, or provide a justification for their exclusion.

**Response:**

The reducers and increasers are fittings and part of the piping system. As described in the LRA, section 3.0, page 3-3, the component group of piping includes piping, tubing and fittings. Thus, reducers and increasers are included in the "Pipe" component group listed in LRA Table 2.3.3-13.

**RAI 2.3.4.3-3.** Drawing LR-M-351, sheets 1 through 4, show the tie in to the feedwater system from the high pressure coolant injection system. Example location F8 shows an expansion joint which is shown to be within the scope of license renewal. A review of Section 2.3.2.3, "Primary Containment Isolation System," of the LRA does not indicate that this component is subject to an AMR. Please clarify the intended function of this expansion joint, and whether it requires an AMR. If so, please include it in an appropriate table in the LRA.

**Response:**

The expansion joint shown on drawing LR-M-351 is the drywell penetration bellow. This is in the scope of license renewal and is identified in Section 2.4.1, Containment Structure, Table 2.4-1.

**RAI 2.3.4.3-4.** On drawing LR-M-308 sheets 1 and 3 (locations B7, E7, and G7), a flow element is shown. A flow element is listed in Table 2.3.4-3 with an intended function of pressure boundary. Please clarify whether "throttle" should be included as an intended function.

**Response:**

"Throttle" is not an intended function for the flow elements in the feedwater system. As identified in the system description in Section 2.4.3, the feedwater system intended functions are to provide an injection path to the RPV for HPCI and RCIC during accident conditions, and primary containment isolation. The component intended function of "pressure boundary" supports these system intended functions.

**Containment Structure (Section 2.4.1)**

**RAI 2.4.1-1.** The LRA lists three intended functions of the primary containment structure within the scope of license renewal: 1) to provide an essentially leaktight fission product barrier, 2) to support pressure suppression and 3) to provide physical support for safety-related and non-safety-related systems and equipment during normal, and abnormal loading conditions. However, the staff believes that the containment also performs the intended functions of protecting safety-related equipment from missiles, high energy line breaks, fires, and environmental hazards. Please add these intended functions to the LRA or justify their omission.

**Response:**

The primary containment intended functions specified in the LRA are consistent with its safety design basis as described in UFSAR Section 5.2. The primary containment does not provide protection against missiles, high energy line breaks, fire, or environmental hazards. This protection is provided by components of the reactor building structure, which encloses the primary containment. Refer to UFSAR Fig. M.1.1, which outlines the boundary of the primary containment structure and to UFSAR Figure 12.1.7, which shows reactor building concrete that protects the primary containment structure.

**RAI 2.4.1-2.** Section 2.4.1 of the LRA states that the drywell is a steel vessel in the shape of a light bulb and is enclosed in reinforced concrete for shielding purposes. Table 2.4-1 of the LRA lists reinforced concrete foundation and floor slab that function as radiation shielding. However, the reinforced concrete around the drywell is not included. Clarify why the reinforced concrete around the drywell and part of the containment structure is omitted from the scope of license renewal and not subject to an AMR.

**Response:**

The reinforced concrete around the drywell is not part of the primary containment structure; but a part of the reactor building structure consistent with Mark I containment design and GALL. The concrete is subject to AMR as indicated in LRA Table 3.5-2. Refer to UFSAR Fig. M.1.1, which outlines the boundary of the primary containment structure and to UFSAR Figure 12.1.7, which shows reactor building concrete that protects the primary containment structure.

**Reactor Building Structure (Section 2.4.2)**

**RAI 2.4.2-1.** Section 5.2.3.2, "Drywell," of the UFSAR (page 5.2-5) states "shielding over the top of the drywell is provided at the refueling floor by a removable, segmented, reinforced concrete shield plug." Table 2.4-1 of the LRA lists a steel drywell head subject to an AMR, but the concrete shield plug is not included. Table 2.4-2 of the LRA lists reinforced concrete walls, slabs, columns, beams and foundation as the components subject to an AMR. Explain why the drywell shield plug (as addressed in the UFSAR) should not be within the scope of

license renewal and subject to an AMR.

**Response:**

The reinforced concrete drywell shield plugs described in UFSAR Section 5.2.3.2 are within the scope of license renewal and subject to AMR. These plugs are part of the reactor building refueling floor slab and are included in LRA Table 3.5-2 with reinforced concrete slabs.

**Radwaste Building Structure (Section 2.4.3)**

**RAI 2.4.3-1** Section 2.4.3 of the LRA, states that the west wall of the radwaste building and reactor auxiliary bay consists of concrete and metal siding for its full length. However, metal siding is not explicitly mentioned under structural steel in Table 2.4-3. The staff noted that metal siding is explicitly mentioned in reviews of other structures. Specific examples include the reactor building structure, where metal siding is listed in Table 2.4-2 as used for fission product barrier and station blackout structure, where metal siding is listed in Table 2.4-6 as used for shelter and protection and/or radiation shielding. Please justify the omission of metal siding and its intended function from Table 2.4-3.

**Response:**

Scoping and Screening of Radwaste Building components concluded that the metal siding performs no intended function under 10CFR 54.4. The design function of the siding is to protect non-safety-related SSCs housed in the building from the weather. It is not designed to protect safety-related SSCs in the building. The safety-related SSCs are enclosed in reinforced concrete compartments such that they can be adequately protected from extreme environmental conditions such as tornadoes, and tornado missiles. The siding is also not required for secondary containment function (fission product barrier) as is the case for the reactor building siding.

**Turbine Building and Main Control Room Complex (Section 2.4.4)**

**RAI 2.4.4-1** Section 2.4.4 of the LRA describes the turbine building structure as follows, "The structure above this level is metal siding and deck above a 20-ft. band of precast concrete wall panels all supported by structural steel frames." However, metal siding is not included in Table 2.4-4. The staff noted that metal siding was identified as a component subject to an AMR for other structures, including the reactor building structure and station blackout structure. Please include metal siding In Table 2.4-4 or provide the justification for its omission.

**Response:**

Scoping and Screening of turbine building and main control room complex concluded that the metal siding performs no intended function under 10CFR 54.4. The design function of the siding is to protect non-safety-related SSCs housed in the building from the weather. It is not designed to protect safety-related SSCs in the building. The safety-related SSCs are enclosed in reinforced concrete compartments such that they can be adequately protected from extreme

environmental conditions such tornadoes, and tornado missiles. The siding is also not required for secondary containment function (fission product barrier) as is the case for the reactor building siding.

**RAI 2.4.4-2.** Section 2.4.4 of the LRA notes as an intended function for the Turbine Building and Main Control Room Complex: "Leak-tightness - The control room provides airtight containment for the habitability areas housed within." The walls separating the main control room complex from the turbine building should be leak-tight but not completely airtight, as during loss of offsite power operation, the ventilation exhaust exits the control room complex by leakage directly through the walls to the adjoining turbine building (see LR-M-384, sheet 3, locations D4, D5). The staff believes that leakage control (prohibiting infiltration, while allowing exfiltration), should be listed as an intended function of the control room complex roof and walls in Table 2.4-4. To this end, please clarify why the "leak-tightness" intended function to permit out-leakage for the appropriate turbine building and main control room complex components is not within the scope of license renewal.

**Response:**

The control room is not designed to be completely airtight or leak proof. Thus the leak-tightness intended function as defined in the LRA, Section 2.4.4, should not be interpreted to imply it is. The structure is designed to be maintained at a slightly positive pressure with respect to the surrounding areas during normal operation and accident conditions. This function supports the Control Room Ventilation System "Ventilation" intended function, described in LRA Section 2.3.3.8 and required by PBAPS Technical Specifications.

As noted by the staff, control room ventilation exhaust during loss of site power (LOOP) is exfiltrated through the floor, ceiling, and walls to the adjacent Turbine Building. However, controlling the amount of exfiltration leakage is not identified as a design basis function for the control room structure or its structural components. The function is provided by normal leakage through sealed penetrations, door jams, and concrete joints while maintaining positive pressure as required by the Technical Specifications. Consequently we did not identify, nor do we believe controlling exfiltration is an intended function of the control room structure.

**Station Blackout Structure and Foundations (Section 2.4.6)**

**RAI 2.4.6-1.** Section 2.4.6 of the LRA states that the Station Blackout (SBO) structure is a pre-fabricated steel enclosure with double doors at either end of the structure to facilitate equipment transfer in and out of the structure as required. The structure is designed to protect the equipment from damage due to external weather exposure. However, the LRA does not describe the structural components that protect the SBO equipment inside the enclosure from high wind, rainfall and potential flooding. These components could include the materials for roof and wall sealing or moisture barriers, if any. If present, such materials should be included in the scope of license renewal. Provide additional information on the components or commodities required for weather protection of the SBO structure.

**Response:**

The station blackout (SBO) structure consists of industrial grade lineup of outdoor 13.8 Kv and 34.5 Kv metal-clad switchgear enclosures. The enclosure lineup is nominally 26 feet by 19 feet in plan, mounted on a steel skid that is supported on concrete piers. Each enclosure is constructed from 12 gage sheet metal and designed to operate in an outdoor environment with an ambient temperature range of -5° F to 100° F and relative humidity range of 0 to 100% as specified in PBAPS specification. The welded switchgear assemblies conform to ANSI C37.20.2 and coated with No. 70 gray paint in accordance with ANSI Z55.1.

The design of the SBO structure is based on NUMARC 87-00, "Guidelines and Technical Bases for NUMARC Initiative Addressing Station Blackout at Light Water Reactors." It is classified non-safety-related designed to commercial grade standard. The structure is designed to protect SBO equipment from rainfall and wind, but not resist high winds, or flood.

As stated above, the enclosure is of welded steel construction including the roof. Thus, components, which provide the required protection, are included in Table 2.4-6 and Table 2.4-14. Roofing material is not included in Table 2.4-6 because it does not exist. The joint between the switchgear enclosures forming the lineup is sealed with silicone sealant. The sealant is in scope of license renewal and subject to aging management review. It is considered a commodity and included in LRA Table 2.4-14, Hazard barriers and Elastomers.

**Yard Structures (Section 2.4.7)**

**RAI 2.4.7-1.** UFSAR Section 9.2 (page 9.3-4) states that the watertight dikes around the refueling water storage tank, the Unit 2 condensate storage tank, the Unit 3 condensate storage tank, and the torus water storage tank are seismically designed for the effects of maximum ground acceleration due to the Design Earthquake. However, LRA Table 2.2-2 states that the watertight dikes are not in the scope of license renewal. Provide the justification why these structures are not in the scope of license renewal.

**Response:**

The watertight dikes around the refueling water storage tank, the condensate storage tanks, and the torus water storage tank are designed for the effects of maximum ground acceleration due to the Design Earthquake, as indicated in UFSAR Section 9.2, to support the liquid radwaste system design basis. Specifically, the liquid radwaste system is designed such that liquid discharge concentrations always are less than 10CFR Part 20 limits. To satisfy this requirement for outdoor tanks, watertight dikes are provided around the tanks to contain any spills or overflow. The dikes are also designed such that they have adequate capacity to contain the contents of the largest single tank in the event the tank ruptures. Water collected within the dikes is either directed to the radwaste system for processing or is released to the plant storm drain system. Prior to any release to the storm drain system the liquid is analyzed for radioactivity to ensure no significant radioactivity is released to the environment. The dikes are not classified seismic Class I structures in PBAPS UFSAR Appendix C.1.2, nor are they credited for a regulated event.

Considering the discussion above, PBAPS scoping and screening results concluded that watertight dikes perform no intended function under 10CFR54.4. Thus, they are not required to be included within the scope of license renewal as indicated in Table 2.2-2.

**Stack (Section 2.4.8)**

**RAI 2.4.8-1** Section 2.4.8 of the LRA, states that the dilution fans and eductor are housed in the lower 30 feet of the stack structure. However, Table 2.4-8 does not reference supports or housings for this equipment. Please clarify.

**Response:**

The dilution fans and educator are components of the Offgas and Recombiner System, which is not within the scope of license renewal as indicated in Table 2.2-1. Also, these components and their supports do not perform any intended function described by 10 CFR 54.4 and consequently they are not required to be referenced in the LRA Tables.

**Diesel Generator Building (Section 2.4.10)**

**RAI 2.4.10-1.** Section 12.2.5 of the UFSAR states, "Large openings in the diesel-generator building are either protected by missile-proof doors, by baffle walls located in front of them, or by blow-out panels." However, blowout panels are not mentioned in the LRA text or Table 2.4-10. Blowout panels are addressed in other structures, such as secondary containment, where they are included as items in Table 2.4-2. Seals for blowout panels are specifically addressed for the reactor building in Table 2.4-14. The staff believes that these blowout panels and seals should be within the scope of license renewal and subject to an AMR. Please indicate whether blowout panels and seals exist and whether they should be included in Table 2.4-10 or provide a justification for their exclusion.

**Response:**

Blowout panels and blowout panel seals do not exist in the diesel generator building. Large openings in the building are either protected by missile-proof doors, or by baffle walls located in front of them, but no blowout panels. This was confirmed by a detailed review of design drawings and a field walkdown of the building.

**RAI 2.4.10-2.** Section 12.2.5 of the UFSAR states, "The superstructure of the building consists of cast in-place concrete walls and roof." Walls are included in Table 2.4-10 of the LRA. However, the roof is not addressed. Please clarify.

**Response:**

The roof of the diesel generator building consists of cast-in-place reinforced concrete slab. The slab is included in reinforced concrete (slabs) commodity group listed in Table 2.4-10.

**Recombiner Building (Section 2.4.12)**

**RAI 2.4.12-1.** Section 12.1 and Appendix C of the UFSAR describe the functions of the recombiner building, but do not describe the building structure. LRA Table 2.4-12, which lists components of the recombiner building structure which are within the scope of license renewal and subject to an AMR, lists walls, slabs, columns, beams, and foundation. However, Table 2.4-12 does not list the structure's roof, nor does Section 2.4.12 of the LRA provide a justification for its exclusion. The staff believes that the recombiner building roof should be within the scope of license renewal and subject to an AMR. For this reason, the staff does not have reasonable assurance that the components of the recombiner building have been properly handled in the LRA. Verify the table to ensure its completeness. If the roof is not within the scope of license renewal and subject to an AMR, provide a justification for its exclusion.

**Response:**

The recombiner building is listed as a seismic Class 1 structure in PBAPS UFSAR Section 12.1 and Appendix C, but as the staff noted it is not described in detail. The description provided in the LRA, Section 2.4.12 is extracted from the PBAPS structural Design Baseline Document. The structure is adjacent and communicates with the Unit 3 reactor building through safety-related doors at elevation 165'. Major components of the building include reinforced concrete, concrete embedments, block walls, structural and miscellaneous steel, siding, and roofing material. The building does not house nor support safety-related systems, or equipment.

A detail review of PBAPS CLB concluded that the building and its structural components do not perform an intended function pursuant to 10CFR54.4 (a)(1) or (a)(3). However, as stated above, it is adjacent to the Unit 3 reactor building and its failure, although unlikely, may impact the reactor building structure. For this reason we have conservatively included components critical to the building structural integrity in the scope of license renewal pursuant to 10CFR54.4 (a)(2). These components are listed in Table 2.4-12 and subject to aging management review as indicated in Table 3.5-12. Structural components such as roofing, siding, decking, and internal partitions (block walls) do not contribute to the structural integrity of the recombiner building and their failure will not impact the reactor building. For this reason they're not included within the scope of license renewal.

**Component Supports (Section 2.4.13)**

**RAI 2.4.13-1.** Section 2.4.13 of the LRA states that the component support commodity group includes support members, anchors, and grout. The staff found that bolts are used for the support members. However, bolts can also be used to fasten the components and structures that are not used for component support. For example, Section 5.2.3.4.7 of the UFSAR (page 5.2-9) mentions bolts in relation to drywell (vessel) head; Section 5.2.3.4.5 of the UFSAR (page 5.2-8) addresses bolted heads of the equipment hatches and bolted manways. Clarify whether the bolts that are used to fasten structures for reasons other than for support are included in the component supports commodity group. If so, explain why the intended function of fastening is omitted from this commodity group. If not,

indicate where these bolts are identified as subject to an AMR.

**Response:**

Bolts for structures and structural components within the scope of license renewal are also in scope of license renewal and subject to an AMR. The bolts are considered subcomponents of the structure(s) or component(s) they fasten and are evaluated as part of that structure or component. This is the case whether the bolts provide a structural support intended function or other functions such as the pressure retaining function. For example, bolts for the drywell (vessel) head, bolts for equipment hatches, and bolts for manways are included in LRA Table 2.4-1 with their respective component group (i.e. drywell head, drywell equipment hatch, etc.). Their pressure boundary and structural support intended functions are enveloped by the intended function listed in the table for the drywell head, drywell equipment hatch, and other access hatches.

**Insulation Commodity Group (Section 2.4.17)**

**RAI 2.4.17-1.** Drawing LR-M-300, Sheet 1, License Renewal Drawing Note No. 8 states that scoping for piping insulation is not shown on the license renewal drawings, but that the in-scope insulation is identified in the license renewal application. The information given in Section 2.4.17 "Insulation" states that insulation is handled as a commodity group. It is further stated that the insulation commodity group includes all insulating materials within the scope of license renewal that are used in plant areas where temperature control is considered critical for system and component operation, or where high room temperatures could impact environmental qualification. Plant areas that require temperature control are stated to include inside the drywell, inside the HPCI and RCIC pump rooms and the outboard MSIV rooms, and on heat traced outdoor piping and components for freeze protection.

The intended function for insulation is temperature control. The applicant has considered the situation where the insulation is required to prevent heat transfer from piping or equipment to the surrounding environment. However, there are no in-scope insulation applications cited where the intent of the insulation is to prevent heat from entering piping in a post-accident condition. The performance of systems, including the RHR, HPSW and ESW, assumed in the licensing basis is based on minimal heat loads, except to the equipment serviced by the system. Without the insulation function, additional heat loads would result from condensation on the uninsulated piping, degrading system performance. Please justify why this insulation function has not been considered in determining the insulation that is within the scope of license renewal.

**Response to 2.4.17-1:**

There is no design basis intended function for insulation to prevent heat from entering a process pipe. As a design feature, anti-sweat insulation is installed on all piping, valves, and fittings that are subject to humid air with an operating temperature of 30 – 60 degrees F or with an operating temperature below ambient. A review of design specifications and the UFSAR did not reveal any design aspect for the conditions stated in this RAI.

**Station Blackout System (Section 2.5)**

RAI 2.5-1 The screening results in Section 2.5 do not include any offsite power system structures or components. The license renewal rule, section 10 CFR 54.4(a)(3), requires that, "all systems, structures, and components relied on in safety analyses or plant evaluations to perform a function that demonstrates compliance with the Commission's regulations for...station blackout (10 CFR 50.63)" be included within the scope of license renewal. The station blackout rule, section 10 CFR 50.63(a)(1), requires that each light-water-cooled power plant licensed to operate be able to withstand and recover from a station blackout of a specified duration (the coping duration) that is based upon factors that include: "(iii) The expected frequency of loss of offsite power; and (iv) The probable time needed to restore offsite power." Licensees' plant evaluations followed the guidance specified in NRC Regulatory Guide (RG) 1.155 and NUMARC 87-00 to determine their required plant specific coping duration. The criteria specified in RG 1.155 to calculate a plant specific coping duration were based upon the expected frequency of loss of offsite power and the probable time needed to restore offsite power, as well as the other two factors (onsite emergency ac power source redundancy and reliability) specified in 10 CFR 50.63(a)(1). In requiring that a plant's coping duration be based on the probable time needed to restore offsite power, 10 CFR 50.63(a)(1) is specifying that the offsite power system be an assumed method of recovering from an SBO. Disregarding the offsite power system as a means of recovering from an SBO would not meet the requirements of the rule and would result in a longer required coping duration. The function of the offsite power system within the SBO rule is, therefore, to provide a means of recovering from the SBO. This meets the criteria within license renewal 10 CFR 54.4(a)(3) as a system that performs a function that demonstrates compliance with the Commission's regulations on SBO. Based on this information the staff requires that applicable offsite power system structures and components need to be included within the scope of license renewal and subject to an aging management review, or additional justification for its exclusion needs to be provided.

**Response:**

Although the applicant disagrees with the above conclusions, the applicant will include those applicable offsite power system structures and components required to support the above description of "recovery" into the scope of license renewal and the aging management review process, as described in the NRC letter to Alan Nelson and David Lochbaum, "Staff Guidance

On Scoping Of Equipment Relied On To Meet The Requirements Of The Station Blackout (SBO) Rule (10 CFR 50.63) For License Renewal (10 CFR 54.4(a)(3))," dated April 1, 2002.

The offsite power system (Substations and 13 Kv) consists of three power sources and their associated structures and components, which allow for power to be provided to the 4 Kv safeguard busses via the 13 Kv System. The substations are of industry standard power distribution design consisting of switchyard bus, insulators, circuit breakers, ground and disconnect switches, transformers, offsite power line poles, and associated switchgear and control buildings, foundations and supports. The offsite power system is discussed in UFSAR Section 8.1.

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 electrical components are shown in Table 1.

Structures and component supports, which protect and support the offsite power system, are also included in the scope of license renewal and subject to aging management review. The structures and component supports include:

- Startup switchgear buildings
- Substation control buildings
- Switchgear enclosures
- Manholes and ductbanks
- Offsite power line poles
- Raceway and switchgear supports
- Supports for in-scope substation components
- Cable trays, conduits, and electrical boxes

The aging management review results for the structural and component supports are shown in Table 2.

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 (1) | • Not Applicable |
| Insulated Cables and Connections | • Electrical Continuity | Outdoor | Polymer Insulation | None (1) | • Not Applicable |
| Insulated Cables and Connections | • Electrical Continuity | Buried | Polymer Insulation | None (1) | • Not Applicable |
| Phase Bus (non segregated) | • Electrical Continuity | Sheltered | Aluminum | None (1) | • Not Applicable |
| Transmission Conductors | • Electrical Continuity | Outdoor | Aluminum | None (1) | • Not Applicable |

(1) No aging effects identified for PBAPS

Table 2

Aging Management Review Results for the Offsite Power System Structural and Support Components

| Component Group | Component Intended Function | Environment | Materials of Construction | Aging Effect | Aging Management Activity |
|---|---|---|---|---|---|
| Reinforced Concrete<br>• Foundation<br>• Walls<br>• Slabs<br>• Ductbanks | • Structural Support to Non-Safety-Related Components | Buried | Concrete | None | • *Not required.* The NRC staff does not require aging management of concrete in inaccessible areas if the soil/water environment is non-aggressive. PBAPS water environment is non-aggressive as documented in response to RAI 3.5-1 and RAI B.1.16-1. |
| Reinforced Concrete<br>• Foundation<br>• Walls<br>• Slabs<br>• Precast panels | • Structural Support to Non-Safety-Related Components<br>• Shelter, Protection, and/or Radiation Shielding | Outdoor, Sheltered | Concrete | Cracking,<br>Loss of material,<br>Change in material properties | • Maintenance Rule Structural Monitoring Program (B.1.16) |

| Component Group | Component Intended Function | Environment | Materials of Construction | Aging Effect | Aging Management Activity |
|---|---|---|---|---|---|
| Block wall | • Structural Support to Non-Safety-Related Components | Outdoor | Masonry Block | Cracking, Loss of Material, Change in material properties | • Maintenance Rule Structural Monitoring Program (B.1.16) |
| • Structural Steel<br>• Support Members<br>• Offsite Power Line Pole<br>• Metal Siding<br>• Metal Decking<br>• Reinforced concrete embedment<br>• Anchors | • Structural Support to Non-Safety-Related Components<br>• Shelter, Protection, and/or Radiation Shielding | Outdoor, Sheltered | Carbon Steel | Loss of Material | • Maintenance Rule Structural Monitoring Program (B.1.16) |
| • Support Members<br>• Metal Decking<br>• Anchors | • Structural Support to Non-Safety-Related Components<br>• Shelter, Protection, and/or Radiation Shielding | Sheltered | Galvanized Carbon steel | None. | • Not Applicable |
| • Support Members<br>• Anchors | • Structural Support to Non-Safety-Related Components<br>• Shelter, Protection, and/or Radiation Shielding | Outdoor | Galvanized Carbon steel | Loss of Material | • Maintenance Rule Structural Monitoring Program (B.1.16) |
| • Support Members<br>• Metal Siding | • Structural Support to Non-Safety-Related Components<br>• Shelter, Protection, and/or Radiation Shielding | Outdoor, Sheltered | Aluminum | None | • Not Applicable |

| Component Group | Component Intended Function | Environment | Materials of Construction | Aging Effect | Aging Management Activity |
|---|---|---|---|---|---|
| Electrical and Instrumentation Enclosures and Raceways.<br>• Cable Trays and Covers<br>• Electrical Boxes | • Structural Support to Non-Safety-Related Components<br>• Shelter, Protection, and/or Radiation Shielding | Outdoor, Sheltered | Aluminum | None | • Not Applicable |
| Electrical and Instrumentation Enclosures and Raceways.<br>• Rigid conduit & fittings | • Structural Support to Non-Safety-Related Components<br>• Shelter, Protection, and/or Radiation Shielding | Sheltered | Galvanized Carbon steel | None | • Not Applicable |

**Instrument Air System (System out-of-scope in LRA)**

**RAI IA-1.** The staff believes that instrument air components which support the operation of the standby gas treatment system, including valves 368-20478-01 and 368-20478-02 at location E7 and G7, respectively, and tubings at location E7 to G7 and F3 to F7 on drawing LR-M-397, sheets 2 and 3, should be within the scope of license renewal and subject to an AMR. Revise the LRA so that the components identified above are within the scope of license renewal and subject to an AMR, or provide a justification for their exclusion.

**Response:**

The subject tubing and valves are associated with the pneumatic controls for standby gas treatment system air-operated dampers. The air-operated dampers controlled by the subject instrument air pneumatic control components are designed as fail-safe. Upon loss of pneumatic control pressure, these dampers will fail to the required position to perform the system intended function. The pneumatic control components are not safety-related and do not perform or support any intended function of the standby gas treatment system. The subject tubing and valves are not in the scope of license renewal and not subject to an AMR.

**RAI IA-2.** Clarify whether the following instrument air supply tubings and valves, serving air-operated valves of the drywell purge supply and exhaust filtration system, are within the scope of license renewal and subject to an AMR. The staff believes that these components should be within scope and subject to an AMR. If the components excluded from license renewal and not subject to an AMR, provide justification for their exclusion:

LRA Drawing LR-M-391, Sheet 1, Primary Containment Isolation and Control (PB APS Unit 2 and Common)

- AO-20452 through AO-20470 at locations F7&F8, E7&E8, D7&D8, F3&F4, E2&E3, D3&D4, C3&C4, and B4&B5.
- radiation detectors 430A/B/C/D AND 432A/B/C/D at locations E3&E4 and F4&F5.

LRA Drawing LR-M-391, Sheet 1, Primary Containment Isolation and Control (PB APS Unit 3)

- AO-30452 through AO-30470 at locations F7&F8, E7&E8, D7&D8, F3&F4, E2&E3, D3&D4, C3&C4, and B4&B5.
- radiation detectors 430A/B/C/D AND 432A/B/C/D at locations E3&E4 and F4&F5.

**Response:**

The subject tubing and valves on drawing LR-M-391 sheet 1, associated with the pneumatic controls for air-operated valves AO-20452 through AO-20470, are not in the scope of license renewal. These air-operated valves are designed as fail-safe. Upon loss of pneumatic control pressure, these valves will fail to the required position to perform the system intended function. The pneumatic control components are not safety-related and do not perform or support any intended function for license renewal. The subject tubing and valves are not in the scope of license renewal and not subject to an AMR.

The subject radiation detectors 430A/B/C/D and 432A/B/C/D on drawing LR-M-391 sheet 1 are in the scope of license renewal. In accordance with NUREG-1800 and NEI 95-10, these radiation detectors are active and not subject to an AMR.

The subject tubing and valves on drawing LR-M-391 sheet 2, associated with the pneumatic controls for air-operated valves AO-30452 through AO-30470, are not in the scope of license renewal. These air-operated valves are designed as fail-safe. Upon loss of pneumatic control pressure, these valves will fail to the required position to perform the system intended function. The pneumatic control components are not safety-related and do not perform or support any intended function for license renewal. The subject tubing and valves are not in the scope of license renewal and not subject to an AMR.

The subject radiation detectors 430A/B/C/D and 432A/B/C/D on drawing LR-M-391 sheet 2 are in the scope of license renewal. In accordance with NUREG-1800 and NEI 95-10, these radiation detectors are active and not subject to an AMR.