

May 10, 2004

MEMO TO: FILE

SUBJECT: SUMMARY OF TELEPHONE CONFERENCES ON APRIL 14, 2004, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION AND THE TENNESSEE VALLEY AUTHORITY CONCERNING ACTIVITIES ON BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2 AND 3, LICENSE RENEWAL APPLICATION (TAC NOS. MC1704, MC1705 AND MC1706)

The U.S. Nuclear Regulatory Commission staff and representatives of TVA (the applicant) held two telephone conference calls on April 14, 2004, to discuss the Browns Ferry Nuclear Plant Units 1, 2 and 3 (BFN) license renewal application. The first conference call was to discuss the aging management considerations for plant structures. The second call was to discuss the scoping and screening of mechanical systems. Enclosure 1 contains a listing of conference call participants. Enclosure 2 contains a listing of items discussed during the conference calls.

During the first conference call, in response to the staff's request on the evaluation of the impact of the extended shutdown (Lay Up) on Unit 1 structures, the applicant indicated that there were no additional aging effects resulting from the extended period of shutdown. The applicant indicated that the environment to which the Unit 1 structures (such as the spent fuel pool, drywell and torus) were subjected to during the period of extended shutdown was the same environment that the operating Unit 2 and Unit 3 structures were subjected to. The applicant also stated that, the Unit 1 structures were subjected to the same corrective action program as were the Unit 2 and Unit 3 structures. The NRC staff acknowledged the applicants discussion and indicated that formal requests for additional information (RAI) would be developed in this area during the staff's review of the application.

During the second conference call, the applicant provided clarification to the staff's queries on the scoping and screening of mechanical systems. The list of the staff's questions that were discussed are reflected in Enclosure 2. The staff acknowledged the applicant's clarifications and stated that some of the items will be included in subsequent requests for additional information (RAI). The conference calls were useful in clarifying the items discussed. No staff decisions were made during the telephone conferences.

*/RA/*

Jimi Yerokun, Senior Project Manager  
License Renewal Section A  
License Renewal and Environmental Impacts Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket Nos.: 50-259, 50-260 and 50-296

Enclosures: As stated

cc w/enclosures: See next page

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**/RA/**

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License Renewal Section A  
License Renewal and Environmental Impacts Program  
Division of Regulatory Improvement Programs  
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Docket Nos: 50-259, 50-260 and 50-296

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**Browns Ferry Nuclear Plant, Units 1, 2 and 3  
Conference Calls Attendees**

Wednesday, April 14, 2004, 9 A.M. - Morning Session

**Participants**

Hans Ashar  
David Jeng  
Jimi Yerokun  
Gary Adkins  
Russel Jenkins  
Eric Blocher

**Affiliation**

U.S. Nuclear Regulatory Commission (NRC)  
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Tennessee Valley Authority (TVA)  
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Wednesday, April 14, 2004 - Afternoon Session

**Participants**

David Cullison  
Yoira Diaz-Sanabria  
Jimi Yerokun  
Mike Morrison  
Gary Adkins

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U.S. Nuclear Regulatory Commission (NRC)  
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**Browns Ferry Nuclear Plant Units 1, 2 and 3  
License Renewal Application  
Aging Management Review/Programs Questions  
NRR/DE Structural Questions**

1. Regarding "Evaluation of the BFN Unit 1 Lay-Up and Preservation Program," document including Tables 1 through 4, there was no item addressing Unit 1 spent fuel storage system related "delta" impact evaluation due to the Lay-up effects. Is the item located elsewhere or what is the rationale for not addressing the above item?
2. What is the basis for not considering potential "delta" impacts due to Lay-Up effects on Unit 1 structures and component supports (containment was included in Table 3) that require an AMR?
3. When the plant is operating, normally, the containment drywell and torus are subjected to inert environment. As the Unit 1 Drywell and Torus were subjected to extended shutdown environment, the aging effects could be relatively significant. How were the lay up effects on containment and structures (e.g., spent fuel pool, liners, caulking and seal materials, steel components in stagnated water or highly humid environments, severe degradation of moisture barriers, liners, insulating materials, intake structure etc. for the lay up period) assessed?

**Browns Ferry Nuclear Plant Units 1, 2, and 3  
License Renewal Application  
Scoping and Screening Review Questions  
TAC Nos. MC1704, MC1705, and MC1706  
NRR/DSSA/SPLB**

**General Questions**

General Question 1

Many LRA Section 2.3 tables list "fittings" as a component type subject to an AMR. Usually, the term "fittings" includes components such as elbows, tees, unions, reducers, caps, flanges, etc., which are an integral part of every piping system. LRA Section 2.3.5 (page 2.3-127) lists other components which fall under the component type "fittings," but does not list the above components.

Confirm that components such as elbows, tees, unions, reducers, caps, flanges, and the like are considered as part of the component type "fittings" in the LRA tables, or state if they are considered as part of another listed component type.

General Question 2

Several drawings at various locations [Examples: 1-47E844-2-LR (locations H3 and H7), 2-47E844-2-LR (location H3 ), and 1-47E815-3-LR (locations C3, D5, C6, and D7)] show segments of pipe as being subject to an AMR. Where the pipe penetrates the reactor building, the "AMR boundary" terminates. The LRA does not explain this apparent transition, nor do the drawings show any type of flag (e.g., seismic class change). Provide justification for terminating the AMR for the various piping at these locations, i.e., the reactor building wall.

General Question 3

Penetrations are referred to in several auxiliary systems, as well as the containment systems portion of LRA Section 2.3.2.1. LRA Section 2.3.2.1 states that the, "Containment System includes the following subsystems: the Primary Containment and the Primary Containment Isolation System, the Secondary Containment, and the Reactor Building Ventilation System." It also states that, the results of scoping and screening evaluations for the following components (valves, piping, *penetrations*, structural steel, etc.) that are essential for primary and/or secondary containment integrity are presented in the corresponding sections. However, in the corresponding sections, penetrations are not listed in the tables that contain components groups that are subject to an AMR. Indicate where the mechanical penetrations for the systems referenced in LRA Section 2.3.2.1 are addressed.

General Question 4

Several auxiliary systems show drains/drain lines as subject to an AMR. However, drains are not listed as a component type in the corresponding AMR tables. Section 2.3.5 of the LRA does not include drains as a part of any component group. Identify which component group contains drains.

### **Section 2.3.3.1 Auxiliary Boiler System**

No questions at this time.

### **Section 2.3.3.2 Fuel Oil System**

No question at this time

### **Section 2.3.3.3 Residual Heat Removal Service Water System**

#### Question 2.3.3.3-1

One of the license renewal drawings referenced in the LRA Section 2.3.3.3 write-up is 0-47E851-4-LR. This drawing is a flow diagram of a drainage system. The components shown as requiring AMR on this drawing are drainage sump lines and floor drain piping. Clarify if this drawing is referenced in error, or identify which components of the RHR service water system are shown on this drawing as requiring AMR. Also, there does not seem to be a Unit 3 drawing referenced similar to 1-47E811-1-LR or 2-47E811-1-LR. Clarify if a similar Unit 3 drawing exists.

### **Section 2.3.3.4 Raw Cooling Water System**

#### Question 2.3.3.4-1

License renewal drawing 1-47E844-2-LR (location E7) indicates, water chillers 1A and 1B are not subject to an AMR. However, it appears that these chillers provide structural support for the attached raw cooling water piping that is subject to an AMR. Explain the basis for excluding these components from an AMR.

#### Question 2.3.3.4-2

License renewal drawing 2-47E844-2-LR (location B7, C7 and D7) shows VFD 2A and 2B heat exchangers (HEX-68-02AA, -02AB, -02BA, -02BB) as being within the scope of license renewal and subject to an AMR. However, LRA Table 2.3.3.4 does not include heat exchangers as a component type. Justify the exclusion of these heat exchangers from LRA Table 2.3.3.4.

### **Section 2.3.3.5 Raw Service Water System**

#### Question 2.3.3.5-1

License renewal drawing 1-47E850-1-LR (location G7) shows normally open butterfly valve 1-25-703 subject to an AMR; however check valve 1-25-702 is not subject to an AMR. This valve appears to be a boundary valve for the attached fire protection system if valve 1-25-703 is normally open. Similarly, license renewal drawings 2-47E850-1-LR (location G8), and 3-47E850-1-LR (location H6, H7) contain similar piping and valve arrangements for Units 2 and 3, respectively, where the discharge of raw service water pumps interface with the fire service system. Explain the basis for excluding valves 1-25-702 (Unit 1), 25-702 (Unit 2) and CKV-25-702 and CKV-25-817 (Unit 3) from being subject to an AMR.

### **Section 2.3.3.6 High Pressure Fire Protection**

Questions to be sent separately.

### **Section 2.3.3.7 Potable Water System**

#### Question 2.3.3.7-1

The potable water system is described in section 2.3.3.7 of the LRA and depicted in license renewal drawings 0-47E835-1-LR, 0-47E866-3-LR and 3-47E866-7-LR. Section 10.15, "Potable Water and Sanitary Systems" of the UFSAR states that, backflow preventers have been installed at each cross section to other systems to protect the potable water supply from possible contamination due to backflow. One such backflow preventer is shown at location F8 of license renewal drawing 0-47E866-3-LR. This backflow preventer consists of three parts, namely valves 0-29-5800A, 0-29-5800B, and preventer body 0-29-5800. The component types of the potable water system that require aging management review are indicated in Table 2.3.3.7. Valves are included in the table. However, the body of the backflow preventer is not included. Clarify if the body of the backflow preventer is included with another component type in the table.

#### Question 2.3.3.7-2

The following observations relate to license renewal drawing 0-47E835-1-LR:

1. The four potable water tanks shown in locations A9, A10 and A11, a portion of the piping leading from these tanks, and a butterfly valve are not shown to be subject to an AMR. The piping just downstream of the valves is shown to be subject to an AMR. It is not clear why the AMR boundary starts in the middle of the piping segment, and why the tanks, piping and valves in question are not subject to an AMR.
2. Piping and valves within the scope of license renewal and subject to AMR are shown within an area bounded by a dashed line labeled "abandoned in place". The label is in location B9. Valves and piping within the dashed area include valves 0-29-601, 0-29-599, 0-29-0105A, 0-29-0105B, 0-29-579 and connecting piping 2-1/2". State whether the valves and piping are abandoned in place. If so, clarify whether these components are within the scope of license renewal and subject to an AMR.

#### Question 2.3.3.7-3

On license renewal drawing 0-47E866-3-LR, no continuation is shown for piping past VTV-1938 at location F8. Indicate where the piping past VTV-1938 extends or connects.

### **Section 2.3.3.10 Control Air System**

No questions at this time.



### **Section 2.3.3.11 Service Air**

No questions at this time.

### **Section 2.3.3.12 Carbon Dioxide (CO<sub>2</sub>)**

Questions to be sent separately

### **Section 2.3.3.13 Station Drainage**

#### Question 2.3.3.13 - 1

License renewal drawing 0-47E851-1-LR shows a steam trap at location C1 as being within the scope of license renewal and subject to an AMR. Section 2.3.5 of the LRA, lists traps under the component group “strainers.” However, strainers are not listed in LRA Table 2.3.3.13. The traps have a pressure boundary intended function. Clarify if this is an omission.

#### Question 2.3.3.13-2

At many plants, drains are credited in internal flooding analyses; however, insufficient information exists in the LRA, on the drawings and in the UFSAR to determine if flood control or flood barrier is an intended function of the drains in the station drainage system. State whether any of the floor drains and equipment drains are credited in the internal flooding analysis for Browns Ferry.

#### Question 2.3.3.13-3

License renewal drawing 0-47E851-1-LR shows a 3-inch roof drain (roof elevation 667.0) at location D3 as not being subject to an AMR. However, the 4-inch roof drains at locations B2 - B12 on license renewal drawing 0-47E852-3-LR are shown to be subject to an AMR. Insufficient information exists in the UFSAR to determine if the 3-inch roof drain has an intended function that would place it in the scope of license renewal. Identify the intended function of this drain.

#### Question 2.3.3.13-4

License renewal drawing 0-47E851-1-LR shows an unidentified component at location D4. This component is connected to a 3-inch drain line that connects to a 3-inch roof drain header upstream of valve 0-77-2284. Identify this component and its intended function.

#### Question 2.3.3.13-5

Floor drains and roof drains are shown as being within scope of license renewal and subject to an AMR on license renewal drawings 0-47E852-3-LR and 0-47E851-4-LR for the station drainage system. However, drains are not listed in LRA Table 2.3.3.13. Section 2.3.5 of the LRA does not include drains as a part of any component group. Clarify if these drains are considered to be part of a component group listed in Table 2.3.3.13.

### **Section 2.3.3.14 Sample and Water Quality System**

#### Question 2.3.3.14-1

License renewal drawing 3-47E610-43-6-LR (location C6) depicts drain piping downstream of isolation valves 631 and 632 as not being subject to an AMR. Similar configurations on this drawing (i.e. piping downstream of valve 622, location F8) show this segment of piping subject to an AMR. The piping downstream of valves 631 and 632 terminate at a floor drain similar to piping downstream of valve 622. If this portion of piping could affect the integrity of valves 631 and 632 due to seismic loadings, it would be within the scope of license renewal per 10CFR 54.4(a)(2) and therefore be subject to an AMR. Justify the exclusion of this portion of the drain piping from being subject to an AMR.

#### Question 2.3.3.14-2

License renewal application Section 2.1.1 states in paragraph (2) that if a current licensing basis difference (between Unit 1 and Unit 2/3) is expected to be resolved, the current differences are annotated with a bold bordered enclosure. This paragraph also states that the Unit 1 current licensing basis (upon restart) will be consistent with the Unit 2 and 3 current licensing basis as described in Appendix F. Section 2.3.3.14, Sampling and Water Quality Systems, states that one of the intended functions of this system is to “establish MSIV leakage pathway to condenser (F.1)” (denoted with a bold bordered enclosure). Appendix F.1 states, “The Unit 1 main steam piping from the outermost isolation valve up to the turbine stop valve, the bypass/drain piping to the main condenser and the main condenser is being evaluated and modified as required to ensure the structural integrity is retained during and following a safe-shutdown earthquake (SSE).” Unit 2 license renewal drawing 2-47E610-43-1-LR (location E1) depicts sampling lines from the main steam system to be subject to an AMR. However, Unit 1 license renewal drawing 1-47E610-43-1-LR (location E1) shows the similar piping and components to not be subject to an AMR. It is not clear why this portion of Unit 1 piping is not subject to an AMR (consistent with Units 2 and 3). Explain why this portion of piping is not subject to an AMR.

### **Section 2.3.3.15 Building Heat System**

#### Question 2.3.3.15-1

License renewal drawing 0-47E866-2-LR, Note (3) states the “boundary ends at reactor building wall.” This note is referred to in a number of locations on this drawing (location J1, 2, 4, 5, 7, 8) where the building heat piping and associated components are no longer subject to an AMR. However, on license renewal drawing 0-47E866-1-LR (locations I5, 6, 7, 8) does not contain a similar note at valves 1-1029, 1-1030, 2-1318, 2-1319, 3-1386, and 3-1387. These valves are shown normally open. Thus, the piping on both sides of these valves appear to provide a secondary containment boundary as described in LRA section 2.3.3.15 and therefore should be subject to an AMR. Explain the basis for these valves being the boundary of piping and components not being subject to an AMR within the building heat system.

### **Section 2.3.3.16 Raw Water Chemical Treatment System**

No questions at this time.

### **Section 2.3.3.17 Demineralizer Backwash Air System**

No questions at this time.

### **Section 2.3.3.18 Standby Liquid Control System**

#### Question 2.3.3.18-1

Component electric heater (HTR), located inside the standby liquid control tank, is shown on license renewal drawings 1-47E854-1-LR, 2-47E854-1-LR, 3-47E854-1-LR as being in scope of license renewal and requiring AMR. Section 2.3.5 lists this component UNID (HTR) in three different component types; fittings, heaters, and tanks. Identify which component type in Table 2.3.3.18 includes the electric heater.

Component UNID "IF" (shown inside a circle) is identified on the license renewal drawings as being in scope and requiring AMR. None of the component types shown in Section 2.3.5 identify this UNID. Identify which component type on Table 2.3.3.18 includes this UNID.

### **Section 2.3.3.19 Off Gas System**

#### Question 2.3.3.19-1

License renewal drawing 1-47E809-2-LR shows one 8 -inch flange at location H3 as being within the scope of license renewal and subject to an AMR. License renewal drawing 2-47E809-2-LR shows three 8-inch flanges at location H3 as being within the scope of license renewal and subject to an AMR. License renewal drawing 3-47E809-2-LR shows one 8 -inch flange at location H-1 as being within the scope of license renewal and subject to an AMR. Section 2.3.5 of the LRA lists flanges under the component group "Head, Flanges and Shell." However, the component group "Head, Flanges and Shell" is not listed in LRA Table 2.3.3.19 as being subject to an AMR. The flanges have a pressure boundary intended function, and are passive and long lived. Clarify if flanges are included in another component type listed in LRA Table 2.3.3.19.

### **Section 2.3.3.20 Emergency Equipment Cooling water System**

#### Question 2.3.3.20-1

On emergency equipment cooling water license renewal drawing 1-47E859-1-LR at location H7, the Units 1 & 2 emergency condensing unit is shown as being in scope of license renewal and subject to an AMR for 10 CFR 54.4(a)(2) criterion. However, this component is not listed in LRA Table 2.3.3.20. Section 2.3.5 of the LRA does not include the emergency condensing unit as a part of any component group. Clarify if the emergency condensing unit is considered to be part of a component group listed in Table 2.3.3.20.

### **Section 2.3.3.22 Reactor Building Closed Cooling Water System**

#### Question 2.3.3.22-1

License renewal drawings 2-47E610-70-1-LR shows dampers at locations D4, D5, C4, C5, B4 and B6 as being within the scope of license renewal and subject to an AMR. License renewal drawing 3-47E610-70-1-LR shows dampers at locations D3, D5, C3, C5, B4, B5, and B6, as being within the scope of license renewal and subject to an AMR. Section 2.3.5 of the LRA lists dampers under the component group “Fire Dampers” and “Ductwork.” However, fire dampers and ductwork are not listed in Table 2.3.3.22. Clarify if this is an omission.

#### Question 2.3.3.22-2

License renewal boundary drawings 2-47E610-70-1-LR shows several combination air filter and pressure regulator at locations A4, A6, B4 and B6 as being within the scope of license renewal and subject to an AMR. License renewal drawing 3-47E610-70-1-LR shows several combination air filter and pressure regulator at locations A4, A6, B4 and B6, as being within the scope of license renewal and subject to an AMR. Section 2.3.5 of the LRA lists filters under the component type “strainers.” Strainers are listed in Table 2.3.3.22. However, pressure regulators are not listed in LRA Table 2.3.3.22. Clarify if pressure regulators are considered to be part of a component group already listed in Table 2.3.3.22.

#### Question 2.3.3.22-3

License renewal drawing 2-47E610-70-1-LR shows dampers and flow control valves for drywell atmospheric cooling units A5 & B5 as being within the scope of license renewal and subject to an AMR. However, the flow control valves and dampers for drywell atmospheric cooling units A4 and B4, A3 and B3, A2 and B2, A1 and B1 are not shown as being within the scope of license renewal and subject to an AMR. Insufficient information exists in the UFSAR to determine the exclusion of the flow control valves and dampers for the drywell atmospheric cooling units listed above from within the scope of license renewal and subject to an AMR. Justify the exclusion of the flow control valves and dampers for drywell atmospheric cooling units A4 and B4, A3 and B3, A2 and B2, A1 and B1 components from within the scope of license renewal and subject to an AMR.

#### Question 2.3.3.22-4

License renewal drawing 2-47E610-70-1-LR and 3-47E822-1-LR shows two valves FCV 70-24 and FCV 70-34. The controller for these valves are shown as being within the scope of license renewal and subject to an AMR on these license renewal boundary drawings. However, the controllers for these valves are not shown as being within the scope of license renewal and subject to an AMR on license renewal drawings 1-47E822-1-LR and 2-47E822-1-LR. Clarify if this is an omission.

#### Question 2.3.3.22-5

License renewal drawing 2-47E610-70-1-LR shows an unidentified component at locations A6, A4, B6, B4, C6, C4, C3, D6, D5, D4, D3, E6, E4, F6, and F4. This component has two boxes

with two arrows pointing in the opposite direction and is connected to a control air supply. This component is not listed in the Browns Ferry P&ID Legend drawing 0-47E800-2-LR. Identify this component and its intended function.

#### Question 2.3.3.22-6

License renewal drawing 1-47E822-1-LR shows a 1-inch vent to duct piping at location B4 through B2 as not being within the scope of license renewal and subject to an AMR. Other piping in this vicinity is in scope of license renewal and subject to an AMR due to 10 CFR 54.4(a)(2). Justify the exclusion of this piece of piping from an AMR.

### **Section 2.3.3.24 Auxiliary Decay Heat Removal System**

No questions at this time.

### **Section 2.3.3.25 Radioactive Waste Treatment**

#### Question 2.3.3.25 - 1

License renewal drawings 1-47E852-1-LR and 2-47E852-1-LR show an airtight closure plate at location F7 as being within the scope of license renewal and subject to an AMR. However, airtight closure plate is not listed in Table 2.3.3.25. Clarify if airtight closure plate is part of a component type already listed in Table 2.3.3.25.

#### Question 2.3.3.25 - 2

License renewal drawings 1-47E852-2-LR, 2-47E852-2-LR and 3-47E852-2-LR show valves 652 and 653 at location D2, and 660 at location C2, and associated downstream piping up to the wall of the pipe tunnel at locations C2 and D2 as being within the scope of license renewal and subject to an AMR. However, the piping beyond the pipe tunnel leading to the waste collection tank and chemical waste tank at locations C2 and D2 is excluded from the scope of the license renewal boundary and is not shown as being subject to an AMR.

Insufficient information exists in the UFSAR and LRA to determine if the piping beyond the pipe tunnel has an intended function(s) that meet the criteria for including them in the license renewal boundary according to 10 CFR 54.4. Discuss the reason for including the components referenced above as being within the scope of license renewal boundary and to an AMR and provide justification for excluding the piping beyond the pipe tunnel.

### **Section 2.3.3.26 Fuel Pool Cooling and Cleanup System**

#### Question 2.3.3.26-1

Section 10.5, Fuel Pool Cooling and Cleanup System, of the UFSAR, discusses fuel pool water makeup sources. It states that a stand pipe and hose connection is provided on each of the two emergency equipment cooling water (EECW) headers which provides two additional fuel pool water makeup sources. Each hose is capable of supplying makeup water in sufficient quantity to maintain fuel pool water level under conditions of no fuel pool cooling. The hose

connections are not clearly shown in the license renewal drawings 1-47E855-1-LR, 2-47E855-1-LR, and 3-47E855-1-LR. The alternate fuel pool filling connections and hoses are shown in locations C3 and C4 of 1-47E859-1-LR of EECW system. Insufficient information exists to determine whether the hose connections (fittings) to the fuel pool cooling and cleanup system are in scope and subject to an AMR. Indicate where these fittings are in scope and subject to an AMR. Also verify that the two stand pipes are the pipes with normally closed valves 792 and 793 in drawing 1-47E859-1-LR.

#### Question 2.3.3.26-2

At location F5 of license renewal drawings 1-47E855-1-LR, 2-47E855-1-LR and 3-47E855-1- two 8" pool cleanup return diffusers are shown. In addition, in location G7 of these drawings two 4" reactor well diffusers are shown. All of these diffusers are shown to be within the scope of license renewal and subject to AMR. However, diffusers are not explicitly listed in Table 2.3.3.26. Clarify if diffusers are considered to be part of a component group already listed in Table 2.3.3.26.

### **Section 2.3.3.27 Fuel Handling and Storage System**

#### Question 2.3.3.27-1

Section 2.3.3.27 of the LRA states that, the portions of the fuel handling and storage system that contain components requiring an AMR are the fuel preparation machines, refueling platform (assembly rails and the main fuel grapple) and the bolting and fasteners associated with the refueling platform and fuel preparation machines. LRA Table 2.3.3.27 lists the components associated with the fuel handling and storage system that are subject to an AMR. However, no drawings are provided for this system. UFSAR Table 10.4-1, "Tools and Servicing Equipment" lists fuel servicing equipment including general purpose grapple, channel transfer grapple, fuel inspection feature and new fuel inspection stand, none of which are referenced in LRA Section 2.3.3.27. Insufficient information exists to determine whether these components are in scope and subject to an AMR. Indicate which of these components are in scope and subject to an AMR.

### **Section 2.3.3.28 Diesel Generator**

#### Question 2.3.3.28-1

On license renewal drawings 0-47E861-5-LR through 0-47E861-8-LR and 3-47E861-5-LR through 3-47E861-8-LR, there are two components in the diesel generator lube oil subsystem not shown subject to an AMR—governor and drain pan. The piping into and out of these components are subject to an AMR, but not the components themselves. Explain why these components are excluded from being within the scope of license renewal and subject to an AMR.

### **Section 2.3.3.29 Control Rod Drive System**

#### Question 2.3.3.29-1

The control rod drive system is described in section 2.3.3.29 of the LRA and depicted in many drawings including 1-47E820-2-LR. On license renewal drawing 1-47E820-2-LR, a “thermal tee” is shown in location C2. The Tee is shown to be within the scope of License Renewal and subject to an AMR. This component is not listed in Table 2.3.3.29, “Control Rod Drive System.” However, piping is listed in Table 2.3.3.29. Clarify if the “thermal tee” is included with another component type in Table 2.3.3.29

#### Question 2.3.3.29-2

The control rod drive system is described in section 2.3.3.29 of the LRA and depicted in many drawings including 1-47E820-2-LR. On license renewal drawing 1-47E820-2-LR, a small square labeled “thermal tee” is shown in location C2. A similar square is shown close by. Indicate whether this is also a “thermal tee.” If it is, Question 2.3.3.29-1 is also applicable to this tee. If it is not, please indicate its function. Moreover, the three lines connected to this device are not clearly labeled. Provide the continuation drawings and the connecting locations for the 24" line, and the other two lines indicated as RCIC and reactor feedwater line B.

### **Section 2.3.3.30 - Diesel Generator Starting Air**

No questions at this time.

### **Section 2.3.3.31 Radiation Monitoring System**

#### Question 2.3.3.31-1

The following monitors are shown to be within the scope of license renewal and subject to an AMR:

- Gas monitors on license renewal drawings 0-47E610-90-2-LR at locations B7, F6, and F8
- Residual heat removal heat exchanger A&C service water discharge radiation monitor on license renewal drawings 1-47E610-90-3-LR, 2-47E610-90-3-LR and 3-47E610-90-3-LR at locations B7 and C7.
- Residual heat removal heat exchanger B&D service water discharge radiation monitor on license renewal drawings 1-47E610-90-3-LR, 2-47E610-90-3-LR and 3-47E610-90-3-LR at locations G4 and G5;
- Raw cooling water radiation monitor on license drawings 1-47E610-90-3-LR, 2-47E610-90-3-LR and 3-47E610-90-3-LR at location E7;
- Reactor building closed cooling water radiation monitor on license renewal drawing 1-47E610-90-3-LR, 2-47E610-90-3-LR and 3-47E610-90-3-LR at location G7.

The monitor housing appears to provide a pressure boundary intended function. However, housing is not listed in LRA Table 2.3.3.31. Section 2.3.5 of the LRA does not include housing as a part of any component group. Clarify if housings are considered to be part of a component group already listed in Table 2.3.3.31.

#### Question 2.3.3.31-2

Quick disconnects are shown as being within scope of license renewal and subject to an AMR on license renewal drawings 2-47E610-90-1 at location G2, on license renewal drawing 3-47E610-90-1-LR at location F4, on license renewal drawing, 0-47E610-90-2-LR at locations B8 and C8, and on license renewal drawing 0-47E610-90-4-LR at locations E1 and F1. However, quick disconnects are not listed in Table 2.3.3.31. Quick disconnects serve a pressure boundary intended function. Section 2.3.5 of the LRA does not include quick disconnect as a part of any component group. Clarify if quick disconnects are considered to be part of a component group already listed in Table 2.3.3.31.

#### **Section 2.3.3.34 Cranes System**

##### Question 2.3.3.34-1

LRA Section 2.3.3.34 states that, the cranes system includes numerous plant load-handling devices that are used for maintenance of selected plant components. LRA Table 2.3.3.34 lists the components associated with the cranes system that are subject to an AMR. However, no drawings are provided for this system. Insufficient information exists to determine which cranes are in scope for the purpose of 10 CFR 54.4(a)(2). Indicate which cranes are in scope.

##### Question 2.3.3.34-2

LRA Section 2.1.2.2, "Overhead Handling System," refers to cranes, monorails, hoists, and mobile A-frames. Mobile A-frames are not mentioned in LRA Section 2.3.3.34 or in the UFSAR. Insufficient information exists to determine whether these mobile A-frames are in scope and subject to an AMR. Indicate whether mobile A-frames are in scope and subject to an AMR.

#### **Section 2.3.4.1 Main Steam**

##### Question 2.3.4.1-1

LRA Appendix F Section F.1 states that, the Unit 1 CLB for main steam isolation valve (MSIV) leakage, unlike that for Units 2 and 3, does not include an alternate leakage treatment pathway which utilizes the main steam piping and main condenser. This alternative leakage pathway is credited in the LOCA analyses of fission product releases for Units 2 and 3 (UFSAR Section 14.6). The Unit 1 restart licensing basis for MSIV leakage will be made consistent with that of Unit 2 and 3, based on an evaluation and required modifications to the main steam piping extending from the outermost primary containment MSIV to the main turbine stop valve, the bypass/drain piping to the main condenser, and the condenser itself. According to LRA Section F.1, these modifications are intended to ensure retention of the structural integrity of these components following a safe-shutdown earthquake.

On license renewal drawing 1-47E801-1-LR, portions of the main steam system (from the turbine building and on) are not shown to be subject to an AMR. However, on license renewal drawings 2-47E801-1-LR and 3-47801-1-LR, the similar segments of piping are shown to be subject to an AMR. Based on the drawings and the information provided in LRA Section 2.1, it is not clear why the sections of piping on license renewal drawing 1-47E801-1-LR are not subject to an AMR. Provide the basis for excluding the piping sections in question from an AMR.



#### Question 2.3.4.1-2

License renewal drawings 1-47E1847-6-LR (locations F3,4), 2-47E2847-5-LR (locations E3,4) and 3-47E3847-5-LR (locations F4,5) show accumulators for the MSIVs within the scope of license renewal. However, LRA Table 2.3.4.1 does not include accumulators as a component type subject to an AMR nor does the LRA indicate that this component is part of a component type already listed in the table. Provide justification for the exclusion of accumulators from LRA Table 2.3.4.1.

#### **Section 2.3.4.2 Condensate and Demineralized Water**

##### Question 2.3.4.2-1

Several of the license renewal drawings referenced in LRA Section 2.3.4.2 show the component “insulated flange” within the scope of license renewal (for example, drawing 1-47E818-1-LR at location F4). LRA Table 2.3.4.2 does not include insulated flanges (or ordinary flanges) as a component type subject to an AMR. Although insulated flanges are passive components, the staff cannot determine whether the insulating material is an integral, permanent part of the flange and therefore long-lived, or whether the insulation is replaced either at specified intervals or based on condition monitoring. In the former case, the insulated flange would be subject to an AMR in accordance with the criteria of 10 CFR 54.21(a).

Describe the design of the component “insulated flange.” In addition, justify why insulated flanges, as well as ordinary flanges, are not included in LRA Table 2.3.4.2, or state if these components are included in another component group listed in the table.

##### Question 2.3.4.2-2

Several of the license renewal drawings referenced in LRA Section 2.3.4.2 show the component “service connection” within the scope of license renewal (for example, drawing 1-47E818-1-LR at locations C4,5). At all locations, service connections are considered within scope on the basis of 10 CFR 54.4(a)(2). Although these components are passive and long-lived, LRA Table 2.3.4.2 does not include them as a component type subject to an AMR.

Describe the design of the component “service connection.” Clarify if this component is included in another component group listed in the table.

#### **Section 2.3.4.3 Feedwater**

##### Question 2.3.4.3-1

License renewal drawings referenced in LRA Section 2.3.4.3 for all three units show the component labeled “thermal sleeve” at the junctures of the RCIC and HPCI systems with the feedwater system (for example, see drawing 1-47E803-1-LR, locations F-6, G-6). This component is shown within the scope of license renewal and, since it is passive and long-lived, should be subject to an AMR in accordance with the criteria of 10 CFR 54.21(a). However, LRA Table 2.3.4.3 does not include “thermal sleeve” as a component type subject to an AMR. Clarify if this component is included with another component group listed in LRA Table 2.3.4.3.

### Question 2.3.4.3-3

License renewal drawing 1-47E817-1-LR (locations H4 and F6) shows the components labeled “aux head chamber” and “temperature equalizing column” within the scope of license renewal. These components appear to be passive and long-lived and, therefore, should be subject to an AMR, in accordance with 10 CFR 54.21(a). However, LRA Table 2.3.4.3 does not include “aux head chamber” and “temperature equalizing column” as component types subject to an AMR, nor does the LRA indicate that these components belong to another component group listed in the table. Clarify if these two components are included in another component type in LRA Table 2.3.4.3.

### **Section 2.3.4.4 Heater Drains and Vents System**

#### Question 2.3.4.4-1

License renewal drawing 2-47E801-2-LR (location B-3,B-4) shows pressure reducing valves PCV-1-151,153,166,167 subject to an AMR, however the piping downstream of these pressure reducing valves are not subject to an AMR. Similarly, license renewal drawing 3-47E801-2-LR (location B-3, B-4) shows the similar arrangement for BFN Unit 3.

Pressure reducing valves typically do not provide isolation capability. Therefore, explain the basis for excluding the piping downstream of valves PCV-1-151,153,166,167 from being subject to an AMR.

#### Question 2.3.4.4-2

License renewal drawing 2-47E801-2-LR (location C2) shows check valves 742 and 744 subject to an AMR, however the piping downstream of these check valves are not subject to an AMR. Similarly, license renewal drawing 3-47E801-2-LR (location C2) shows the similar arrangement for BFN Unit 3.

Since the check valve orientation as shown on these drawing will not prevent flow to the downstream piping explain the basis for excluding the piping downstream of check valves 742 and 744 from being subject to an AMR.

### **Section 2.3.4.5 Turbine Drains and Miscellaneous Piping System**

#### Question 2.3.4.5-1

Section 2.3.4.5 of the LRA lists the following two drawings: “License Renewal, Turbine Drains and Miscellaneous Piping”, 2-47E807-2-LR and 3-47E807-2-LR. It appears that the following two additional drawings should have been listed: “License Renewal, Turbine Drains and Miscellaneous Piping”, 2-47E807-1-LR and 3-47E807-1-LR. These two drawings contain the main steam stop valves for units 2 and 3. In addition, the main steam supply to steam seal regulator at location 2-47E807-2-LR, C5 (3-47E807-2-LR, C5), is partly supplied from 2-47E807-1-LR, G8 (3-47E807-1-LR, G8). Verify the applicability of these drawings to Section 2.3.4.5.

### **Section 2.3.4.6 Condenser Circulating Water**

#### Question 2.3.4.6-1

LRA Table 2.3.4.6 lists the following component types as being subject to an AMR: bolting, fittings, piping, strainers, tubing, and valves. The only intended function listed for each of these component types is “structural support” (bolting has the additional intended function “mechanical closure”). However, the primary intended function of fittings, piping, tubing, and valve bodies is to provide a pressure boundary, while strainers have the intended functions of both pressure boundary and debris protection (filtration).

Clarify why the intended functions “pressure boundary” and “debris protection” are not included in LRA Table 2.3.4.6 for the listed component types.

#### Question 2.3.4.6-2

LRA Section 2.3.4.6 states that the condenser circulating water system includes a loop in the discharge conduit containing a vacuum breaker that prevents the backflow of heated water from the cooling tower warm water channel into the intake channel (which serves as the ultimate heat sink), upon trip of the condenser circulating water pumps. It also states that “the portion of the Condenser Circulating Water System that contains components requiring an AMR extends in the discharge vacuum breaking piping from the discharge conduit to an atmospheric vent.” License renewal drawing 1-47E831-3-LR for Unit 1 shows this particular portion of the condenser circulating water system highlighted entirely in red (i.e., subject to an AMR for 54.4(a)(1) or (a)(3)). However, license renewal drawings 2-47E831-3-LR and 3-47E831-3-LR for Units 2 and 3, respectively, show the corresponding portion of the condenser circulating water system with part highlighted in blue (i.e., subject to an AMR for 54.4(a)(2)) and part highlighted in black (i.e., not subject to an AMR).

Explain why the above described portion of the condenser circulating water system has been treated differently for Units 2 and 3 than for Unit 1.

### **Section 2.3.4.7 Gland Seal Water System**

No questions at this time.