

May 10, 2004

LICENSEE: Indiana Michigan Power Company

FACILITY: Donald C. Cook Nuclear Plant, Units 1 and 2

SUBJECT: SUMMARY OF APRIL 13, 2004, MEETING BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION (NRC) AND INDIANA MICHIGAN POWER COMPANY (I&M) REPRESENTATIVES TO DISCUSS PROPOSED RESPONSES TO DRAFT REQUEST FOR ADDITIONAL INFORMATION CONCERNING THE LICENSE RENEWAL APPLICATION FOR DONALD C. COOK NUCLEAR PLANT, UNITS 1 AND 2

The U.S. Nuclear Regulatory Commission staff (the staff) and representatives of Indiana Michigan Power Company (the applicant) held a meeting at NRC headquarters on April 13, 2004. The meeting was used to discuss proposed responses to draft request for additional information (D-RAIs) submitted to the applicant as a result of the staff's review of the Donald C. Cook Nuclear Plant (Cook) license renewal application (LRA).

The meeting provided the staff the opportunity to comment on the applicant's proposed responses to their D-RAIs. The participants agreed to treat these D-RAIs as final request for additional information (RAIs). The applicant planned to submit its formal responses to these RAIs within a few weeks of the meeting. No staff decisions were made during the meeting. The staff also clarified a group of D-RAIs not submitted to the applicant prior to the meeting.

This was a Category 1 public meeting. Enclosure 1 is a list of the meeting participants. Enclosure 2 contains a listing of the D-RAIs responded to by the applicant, including a brief description on the status of the response to each item. Enclosure 3 contains a listing of the D-RAIs not submitted prior to the meeting, including a brief description on the status of the items. The applicant has had an opportunity to review and comment on this summary.

/RA/

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

Docket Nos.: 50-315 and 50-316

Enclosures: As stated

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LICENSEE: Indiana Michigan Power Company

FACILITY: Donald C. Cook Nuclear Plant, Units 1 and 2

SUBJECT: SUMMARY OF APRIL 13, 2004, MEETING BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION (NRC) AND INDIANA MICHIGAN POWER COMPANY (I&M) TO DISCUSS PROPOSED RESPONSES TO DRAFT REQUEST FOR ADDITIONAL INFORMATION CONCERNING THE LICENSE RENEWAL APPLICATION FOR DONALD C. COOK NUCLEAR PLANT, UNITS 1 AND 2.

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Jonathan Rowley, Project Manager
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Docket Nos.: 50-315 and 50-316

Enclosures: As stated

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DISCUSS I&M'S RESPONSE TO NRC D-RAIs FOR COOK LRA**

April 13, 2004

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**LISTING OF DRAFT REQUESTS FOR ADDITIONAL INFORMATION (D-RAIs) REVIEWED
AND RESPONDED TO BY I&M FOR DONALD C. COOK (COOK), UNITS 1 AND 2
LICENSE RENEWAL APPLICANT DURING APRIL 13, 2004 MEETING**

Section 2.2 Plant-Level Scoping Results

D-RAI 2.2-3

In a comparison of the Donald C. Cook (Cook) units, the staff's review finds that, in general, the Cook LRA does not identify design differences in the systems and components for Cook Unit 1 compared to Unit 2. Cook Units 1 and 2 were licensed approximately three years apart and have a 5% difference in rated thermal power.

Provide a general description of the major design differences between the systems and components of the two units. Explain how these differences have been addressed in the scoping and screening review process for the corresponding systems of the two units.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.2-4

Section 1.4 of the Cook UFSAR notes that the design of Unit 1 preceded the adoption of the 10 CFR 50 Appendix A, General Design Criteria, and therefore, the Cook plant was designed and constructed to meet the intent of the Proposed General Design Criteria, published July 11, 1967. Use of the preliminary version of the plant-specific design criteria may have resulted in significant differences in the licensing bases for Cook Units 1 and 2 from later PWRs of a similar design.

To facilitate the staff's review, provide a summary description of the impact of these differences on the Cook design, including the technical areas where these differences may impact the scoping and screening results for the two units.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.2-5

Many LRA Section 2 tables (for example, Tables 2.3.3-2, 2.3.3-3, and 2.3.4-3) list "fittings" as a component type subject to an AMR having the intended function of a pressure boundary. Fittings normally include the piping system components such as elbows, tees, unions, reducers, caps, etc. However, the corresponding LRA tables for the other auxiliary systems and steam and power conversion systems (for example, Tables 2.3.3-5, 2.3.3-6, 2.3.3-11, 2.3.4-1, 2.3.4-2, and 2.3.4-4) do not include the component type fittings, even though fittings are an integral part of these systems. Identify components that are considered in the LRA tables as part of the component group fittings, and explain why the component type "fittings" is not included in some of the LRA Section 2 tables.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.2-6

License renewal drawings for the essential service water system for Cook, Unit 1 and Unit 2, LRA-1-5113 and LRA-2-5113, show radiation monitoring alarms, at locations M3 and M6 on the drawings. Similarly, radiation monitoring alarms are shown on the Unit 1 and Unit 2 license renewal drawings of the component cooling water system LRA-1-5135 and LRA-2-5135, at locations J6 and J7. Clarify whether these alarms penetrate the pressure boundary of the system piping. If they do, as recommended in Table 2.1-5 of NUREG-1800 and Appendix B of NEI 95-10, Revision 3, identify the radiation monitoring alarms for the auxiliary systems that support the intended function of maintaining the pressure boundary and thus are within the scope of license renewal and subject to an AMR in accordance with the requirements of 10 CFR 54.4(a)(1)(ii) and 10 CFR 54.21(a)(1).

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

Section 2.3.3 Auxiliary Systems

2.3.3.1 Spent Fuel Pool System

D-RAI 2.3.3.1-1

Section 2.3.3.1, "Spent Fuel Pool" (SFP) of the LRA states that, "The primary safety intended function of the spent fuel pool system is to maintain adequate water inventory for shielding and to prevent criticality of the stored fuel." In a letter dated February 4, 1992, in response to the staff's request for additional information on a license amendment request for Cook, Units 1 and 2, the Indiana Michigan Power Company stated the following:

Make-up water to the [spent fuel] pool can be obtained from several reliable, permanently installed sources, including the [chemical and volume control system] hold-up tank recirculation pump, demineralized water supply, and [reactor water storage tank]. With these diverse sources, make-up water will be readily available in the event of loss of spent fuel pool cooling.

In the safety evaluation issued pursuant to the above amendments (Amendment Nos. 169 and 152 to licenses DPR-58 and DPR-74 for Cook, Units 1 and 2) dated January 14, 1993, the staff stated the following:

In the safety evaluation issued pursuant to Amendment No. 32 to Facility Operating License No. DPR-58 and Amendment No. 13 to Facility Operating License No. DPR-74 for Cook, Units 1 and 2, respectively, state that the spent fuel pool meets the design criteria of Regulatory Guide 1.13 which requires a diversity of make up water sources to the spent fuel pool. The SE states that in a previous SE for Amendment No. 32 and 13 to licenses DPR-58 and DPR-74, the staff accepted the chemical and volume control system hold-up tanks as the

Seismic Category I source of make up water to the SFP. The hold-up tank recirculation pump, which is rated at 500 gpm, can be used to pump water from the hold up tank to the SFP.

However, the license renewal drawing of the SFP, LRA-12-5136, does not show the source of make-up water from the chemical and volume control system (CVCS) hold-up tanks to the SFP as being subject to an AMR. Justify the exclusion of the piping and components linking the make-up water source from the CVCS hold-up tanks, and at least one other make-up water source to the SFP from being subject to an AMR in accordance with the requirements of 10 CFR 54.4(a)(1)(iii) and 10 CFR 54.21(a)(1).

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

2.3.3.2 Essential Service Water System

D-RAI 2.3.3.2-1

LRA Table 2.3.3-2 lists tubing in the essential service water system (ESW) as subject to an AMR. However, tubing is not identified on the ESW license renewal drawings. Identify the ESW tubing that is in scope and subject to an AMR.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.3.3.2-2

License renewal drawings of ESW for Cook Unit 1 and Unit 2, LRA-1-5113A and LRA-2-5113A identify "Auto Vent VA" components T-131-5, T-131-6, T-131-7, and T-131-8 shown at locations D9, C7, D4, and C2 of the drawings to be within the scope of license renewal and subject to an AMR. Similarly, license renewal drawings LRA-1-5113 for Unit 1 and LRA-2-5113 for Unit 2 identify components T-131-1, T-131-2, T-131-3, and T-131-4 shown at locations B3, and B7 of the drawings as within scope and subject to an AMR. However, an Auto Vent VA component group is not listed in Table 2.3.3.2 as being subject to an AMR. Include the Auto Vent VA component group in Table 2.2.3.2 or justify the exclusion of this group from the table.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.3.3.2-3

LRA Section 2.3.3.2 states that the license renewal drawings do not indicate components that are within the scope of license renewal in accordance with the requirements 10 CFR 54.4(a)(2) only. This section also states that, "Non-safety-related component types in the ESW system that require aging management review for 10 CFR 54.4(a)(2) are in the auxiliary building and screen house and consist of bolting, valves, tubing and piping."

Clarify whether all the bolting, valves, tubing and piping in the auxiliary building and screen house are in-scope and subject to an AMR in accordance with 10 CFR 54.4(a)(2) and 10 CFR 54.21(a)(1). If not, identify which components are in-scope and subject to an AMR.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

Section 2.3.3.3 Component Cooling Water System

D-RAI 2.3.3.3-1

The following items are shown on the license renewal drawings as within the scope of license renewal and subject to an AMR. However, they are not listed in Table 2.3.3-3, "Component Cooling Water (CCW) System Components Subject to Aging management Review." Explain why these components are not listed in Table 2.3.3-3 as components subject to an AMR.

- a. Upper and lower bearing oil coolers shown on the license renewal drawings LRA-1-5135D and LRA-2-5135D, at locations E2, H2, K2, and L2.
- b. External pipe coils shown on the license renewal drawings LRA-1-5135E and LRA-2-5135E at locations B2, B5, J2, and J5.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.3.3.3-2

LRA Table 2.3.3-3 lists the following items as components that are subject to an AMR. However, the staff is not able to identify them on the license renewal drawings as components subject to an AMR.

- a. Tubing is listed in Table 2.3.3-3 and identified in LRA Section 2.3.3.3 as a non-safety-related component type that requires an AMR for 10 CFR 54.4(a)(2). Although tubing was found in the CCW license renewal drawings, none of it was designated as being subject to an AMR. Identify CCW system tubing that are subject to an AMR.
- b. LRA Tables 2.3.3-3 and 3.3.2-3 list strainer-tee and expansion joint as components subject to an AMR. However, these components are not shown on the CCW system license renewal drawings. Clarify if all the component cooling water system strainer-tees and expansion joints are within the scope of license renewal and subject to an AMR. If not, identify those that are subject to an AMR and provide justification for those that are not subject to an AMR.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.3.3.3-3

Eductors are listed in LRA Section 2.3.3.3 as non-safety-related components in the auxiliary building that require an AMR for 10 CFR 54.4(a)(2). However, eductors are not shown on the license renewal drawing for the CCW system, nor are they listed in LRA Table 2.3.3-3 as components subject to an AMR. Identify the eductors in the CCW system and explain why they are not listed in LRA Table 2.3.3-3 as components being subject to an AMR.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.3.3.3-4

License renewal drawings LRA-1-5135C and LRA-2-5135C show portions of the CCW system piping between the license renewal boundary flags at locations F5 to H5 (to and from the seal water heat exchangers) and K5 to M5 (to and from the let down heat exchangers), including the heat exchangers tubes and shells, as not subject to an AMR. However, parts of the seal water heat exchanger and letdown heat exchangers (heat exchanger channel, tubesheet, and tube side nozzles) that are within the chemical volume control system license renewal boundary are shown as subject to an AMR. Explain why the above mentioned portions of the CCW system are excluded from being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.3.3.3-5

The boundary of the portion of the CCW system that is subject to an AMR ends at 2" or larger valves (e.g., 10" valve on LRA-1-5135C and LRA-2-5135C at locations B6 and D6) that are shown as normally open. There are also numerous boundaries of the portion of the CCW system that are subject to an AMR that end at valves that are normally open to 2 inches or less diameter piping. Failure of the downstream piping may affect the pressure boundary intended function. However, Section 2.3.3.3 of the LRA does not discuss why this approach is acceptable. Provide additional information to support the basis for this determination. For example, discuss the steps in the procedures for identifying the locations of breaks, for closing the valves, the amount of time required to complete these steps, and the consequences on system inventory if the valves are not closed.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

Section 2.3.3.4 Compressed Air System

D-RAI 2.3.3.4-1

Clarify if the following components are included in Table 2.3.3-4 as being subject to an AMR. If not, justify the exclusion of these components from being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1):

- a. License renewal drawings show pressure regulators as within the scope of license renewal and subject to an AMR: LRA-1-5120R and LRA-2-5120R at locations E7, F8, and F9 and LRA-1-5120S and LRA-2-5120S at locations A8, B8, A9, and B9. However, housings of these regulators, which are passive and long-lived, are not specifically listed as components subject to an AMR in Table 2.3.3-4.
- b. License renewal drawings LRA-1-5120R, LRA-2-5120R, LRA-1-5120S, and LRA-2-5120S show components MRV-223-VB1, MRV-223-VB2, MRV-233-VB1, MRV-233-VB2, MRV-213-VB1, MRV-213-VB2, MRV-243-VB1, and MRV-243-VB2 as within the scope of license renewal and subject to an AMR. Also, identify these components because they are not identified either on the standard symbol drawings (LRA-12-5103 and LRA-12-5104) or the control air system standard symbol drawing (LRA-12-5120G).
- c. License renewal drawing LRA-12-5118B shows an electronic pneumatic transducer (2-GRV354) at location J5 as within the scope of license renewal and subject to an AMR. However, the pressure retaining boundary of this component, which is passive and long-lived, is not specifically listed as a component subject to an AMR in Table 2.3.3-4.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.3.3.4-2

On license renewal drawings LRA-1-5120R and LRA-2-5120R at locations E7, F8, and F9 and LRA-1-5120S and LRA-2-5120S at locations A8, B8, A9, and B9, components marked as MRV-223, MRV-233, MRV-213, and MRV-243 are shown as excluded from being subject to an AMR. However, it appears that these components have pressure boundary intended function. These components are not identified either on the standard symbol drawings LRA-12-5103 and LRA-12-5104 or control air system standard symbol drawing LRA-12-5120G. Identify these components and clarify whether they are passive and long-lived components. If so, explain why these components are not shown on the drawings and listed in Table 2.3.3-4 as being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

Section 2.3.3.8 Emergency Diesel Generator System

D-RAI 2.3.3.8-1

The following components are shown as subject to an AMR on the emergency diesel generator (EDG) license renewal drawings. However, they are not listed in LRA Table 2.3.3.8 for EDG components subject to an AMR. These components are passive and long-lived, and serve a pressure boundary function. Justify the exclusion of the following components from Table 2.3.3.8:

- a. On license renewal drawings LRA-1-5151B, LRA-2-5151B, LRA-1-5151D and LRA-2-5151D:
 - Intake manifold coolers with cooling coils, HE-47-ABS/CDS and HE-47-ABN/CDN at locations H7 and J7
 - Air receivers at locations A4 and B4
 - Air distributors at locations D3 and E3
 - Turbocharger housing at location G8.
- b. 3/4" fuel drips on drawings LRA-1-5151A, LRA-2-5151A, LRA-1-5151C, and LRA-2-5151C, at location N8.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.3.3.8-2

LRA Table 2.3.3-8 lists heater housing as a component type subject to an AMR. However, by-pass lube oil filter electric heater housings (QT-501-AB/CD) shown on the license renewal drawings LRA-1-5151A, LRA-2-5151A, and LRA-1-5151C, at location A9, are shown as excluded from being subject to an AMR. Clarify whether these heaters penetrate the pressure boundary of the system by-pass oil filters, and if the parts of these heaters that support the intended function of maintaining the pressure boundary are within the scope of license renewal and subject to an AMR in accordance with the requirements of 10 CFR 54.4(a)(2) and 10 CFR 54.21(a)(1).

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.3.3.8-3

The 3/4" contaminated drip lines to the engine room sump are shown on license renewal drawings LRA-1-5151A, LRA-2-5151A, LRA-1-5151C, and LRA-2-5151C as being subject to an AMR. These lines continue on P&ID drawings 5180 and 12-5180, which are not included in the license renewal drawing index. Therefore, the staff is unable to determine whether all the contaminated drip line components that meet the criteria of 10 CFR 54.4(a)(2) have been identified as being subject to an AMR and are listed as component types in LRA Table 2.3.3-8. In order for the staff to make this determination, provide the above mentioned drawings or text

information which identifies the EDG fuel oil drip line components that are subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.3.3.8-4

Lube oil coolers are shown, at location H6, on the license renewal drawings LRA-1-5151A, LRA-2-5151A, LRA-1-5151C, and LRA-2-5151C; and jacket water coolers are shown at location E9, on the license renewal drawings LRA-1-5151B, LRA-2-5151B, LRA-1-5151D, and LRA-2-5151D as within the scope of license renewal and subject to an AMR. Table 2.3.3-8 does not list "heat exchanger channels" and "tubesheets," although "heat exchanger shell" with an intended function of pressure boundary and "heat exchanger tubes" with an intended function of heat transfer are listed in this table as components subject to an AMR. Explain why the heat exchanger channels and tubesheets are not included in Table 2.3.3-8.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

Section 2.3.3.9 Security System

D-RAI 2.3.3.9-1

A vent is shown on license renewal drawing LRA-12-5150B at location D5 as subject to an AMR. However, the vent component group is not listed in LRA Table 2.3.3-9. Clarify if vents are considered to be part of the component group "piping" in Table 2.3.3-9. If not, justify the exclusion of this component from being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.3.3.9-2

Clarify whether the components of the security diesel generator (SS-701) shown on license renewal drawing LRA-12-5150B, at location N4, is treated in the Cook LRA as a complex assembly. Regarding complex assemblies, Table 2.1-2 of NUREG-1800 states that "Some structures and components, when combined, are considered a complex assembly. An applicant should establish the boundaries for each assembly by identifying each structure and component that makes up the complex assembly and determining whether or not each structure and component is subject to an AMR." If the security diesel generator is treated as a complex assembly, identify the boundaries of the security diesel generator so that the staff may determine whether its subcomponents are subject to an AMR in accordance with the requirements of 10 CFR 54.4(a)(3) and 10 CFR 54.21(a)(1).

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.3.3.9-3

License renewal drawing LRA-12-5150B shows two jacket water coolers at locations K8 and K9 as being within the scope of license renewal and subject to an AMR. Clarify if these jacket water coolers are listed in LRA Table 2.3.3-9 as part of the heat exchanger component type subject to an AMR. If not, justify the exclusion of these components from Table 2.3.3-9.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

Section 2.3.3.11 Miscellaneous Systems

D-RAI 2.3.3.11-1

Section 2.3.3.11 of the LRA describes 17 systems within the scope of license renewal and subject to an AMR based on the criterion of 10 CFR 54.4(a)(2), i.e., these systems contain non-safety-related components whose failure could potentially result in the failure of safety-related equipment to perform its intended function. However, it is not explained how failure of these systems or components within these systems may effect the safety-related components/systems intended functions. Provide additional information which describes how failure of these non-safety-related systems results in the failure of a safety-related system or component to perform its intended function.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.3.3.11-2

LRA Table 2.3.3-11 identifies component types and intended functions as a group for these 17 systems. The staff is unable to identify which component types and intended functions in the table correlate to which of the 17 systems described in LRA Section 2.3.3.11. License renewal drawings have not been provided for these systems, nor does the UFSAR provide sufficient descriptive information. Therefore, the staff is unable to conclude, with reasonable assurance, that the applicant has identified the mechanical system components for these systems that are within the scope of license renewal and subject to an AMR in accordance with the requirements of 10 CFR 54.4(a)(2) and 10 CFR 54.21(a)(1). In order for the staff to make this determination, provide drawings or text information which identifies the components by system that are subject to an AMR because they meet the intended function of 10 CFR 54.4(a)(2) and 10 CFR 54.21(a)(1). If any of these components are not included in LRA Table 2.3.3-11, revise the table.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.3.3.11-3

Page 2.3-82 of the LRA implies that the spent fuel pool cooling system does not perform an intended function as defined in 10 CFR 54.4. In addition, license renewal drawings LRA-1-5135B and LRA-2-5135B show portions of the CCW system piping between the license

renewal boundary flags at locations J3 and L4 (to and from the spent fuel pit heat exchangers) as excluded from being subject to an AMR. However, UFSAR Section 9.4.1, Page 35 states that, "Any spent fuel pool off-loading scenario, including a full core off-load of two units, which meets the 180°F peak bulk pool temperature with one train of cooling and 5.8 hours to boil criteria is acceptable."

From this statement, it is not clear that water in the spent fuel pool can maintain sufficient shielding and prevent the release of radioactive gases with the 180°F peak bulk pool temperature and 5.8 hours to boil criteria without activation of at least one cooling train. Justify why at least one train of spent fuel pool cooling is not within the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a).

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

Section 2.3.4 Steam and Power Conversion Systems

2.3.4.1 Main Feedwater System

D-RAI 2.3.4.1-1

LRA Section 2.3.4.1 states that, "The main feedwater system is also included in the scope of license renewal due to the potential for spatial interactions with safety-related equipment. The main feedwater system non-safety-related components requiring an aging management review for 10 CFR 54.4(a)(2) are in the auxiliary building."

License renewal drawings LRA-1-5105D and LRA-2-5105D (the only drawings referenced in Section 2.3.4.1) show the safety-related portion of the main feedwater system only, which is from the steam generators to the main feedwater check valves. This portion of the system is within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1). The remainder of the feedwater system, upstream of the check valves (which includes the aforementioned non-safety-related components within the scope of license renewal in accordance with 10 CFR 54.4(a)(2)), is continued on drawings 1-5106 and 2-5106, which are not included in the LRA drawing index. Therefore, the staff is unable to determine whether the main feedwater system components that meet 10 CFR 54.4(a)(2) criteria (non-safety-related components whose failure prevent satisfactory accomplishment of a safety-related component intended function) are identified as component types subject to an AMR in LRA Table 2.3.4-1. Provide drawings or text information which identifies the main feedwater system components within the scope of license renewal because they meet the criteria of 10 CFR 54.4(a)(2) as described. If any of these components which are passive and long-lived are not included as a component type in LRA Table 2.3.4-1, revise this table.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

Section 2.3.4.2 Main Steam System

D-RAI 2.3.4.2-1

LRA Section 2.3.4.2 states that, "The main steam system is also included in the scope of license renewal due to the potential for spatial interactions with safety-related equipment. The non-safety-related components in the main steam system that require aging management review for 10 CFR 54.4(a)(2) are in the auxiliary building and the turbine building in the auxiliary feedwater pump rooms." According to LRA Section 2.1.2.1.2, "Components that are within the scope of license renewal based solely on the criterion of 10 CFR 54.4(a)(2) are not generally indicated on the drawings but are described in Section 2.3 and listed in Table 3.3.2-11."

License renewal drawings LRA-1-5105D, LRA-2-5105D, LRA-1-5141A, and LRA-2-5141A (the only drawings referenced in Section 2.3.4.2) show the safety-related portion of the main steam system only from the steam generators to the main steam isolation valves. This portion of the system is within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1). The remainder of the system, downstream of the isolation valves up to the high-pressure turbine (which would include the aforementioned non-safety-related components within the scope of license renewal in accordance with 10 CFR 54.4(a)(2)), is shown on the license renewal drawing LRA-1-5105. However, no components belonging to the main steam system are highlighted on this drawing. Additionally, LRA Table 3.3.2-11 lists component types under the general heading of "Miscellaneous Systems in Scope for 10 CFR 54.4(a)(2)" rather than associating them with specific systems. As a result, by using this table and the LRA drawings provided, the staff is unable to verify that all main steam system components within the scope of license renewal and subject to an AMR have been properly identified.

Clarify whether all the non-safety-related components of the main steam system are within the scope of license renewal, because of a potential spatial interaction with safety-related equipment, subject to an AMR in accordance with 10 CFR 54.4(a)(2) and 10 CFR 54.21(a)(1). If not, identify which components are in-scope and subject to an AMR.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.3.4.2-2

The four main steam isolation valves and their actuators are shown on license renewal drawings LRA-1-5105D and LRA-2-5105D at locations B3, B7, L3, and L7. UFSAR Section 10.2.2 describes the design of these actuators. The drawings show the actuator cylindrical housings as being within the scope of license renewal and subject to an AMR. However, these housings are not specifically listed in LRA Table 2.3.4-2 as a component type subject to an AMR. These housings are passive, long lived components and meet the requirements of 10 CFR 54.21(a)(1) for being subject to an AMR.

Clarify whether these housings are included in one of component types listed in LRA Table 2.3.4-2. If not, justify the exclusion of these housings from being subject to an AMR.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

Section 2.3.4.3 Auxiliary Feedwater System

D-RAI 2.3.4.3-1

With regard to the condensate storage tank, LRA Section 2.3.4.3 states that, "The floating head seal and associated support posts are included in the aging management review because the failure of the seal could cause flow blockage." License renewal drawings LRA-1-5106A and LRA-2-5106A show the condensate storage tanks for Units 1 and 2 as being subject to an AMR. However, the floating head seal is shown to be excluded from being subject to an AMR in both of these drawings and, furthermore, is not listed in LRA Table 2.3.4-3 as a component type subject to an AMR. Explain why the floating head seal on the condensate storage tank, although stated earlier to be subject to an AMR, is not highlighted on the abovementioned drawings nor listed in Table 2.3.4-3 as a component type subject to an AMR.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.3.4.3-2

License renewal drawings LRA-1-5106A and LRA-2-5106A show strainers upstream of the three auxiliary feedwater pumps at locations E9, H9, and K9. LRA Table 2.3.4-3 includes strainer housings as a component type subject to an AMR, however, strainer internals have not been listed in this table. Failure of the strainer internals could prevent the strainer from performing its intended function (in this case preventing debris from entering the pump suction), or possibly cause a flow blockage. Clarify whether these strainer internals are long-lived and passive. If so, justify why strainer internals are not included in Table 2.3.4-3 as being subject to an AMR in accordance with 10 CFR 54.21(a)(1).

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.3.4.3-3

License renewal drawing LRA-1-5106A shows turbine oil cooler HE-70 and governor oil cooler HE-71, at locations L3 and M2, as being in scope and subject to an AMR. LRA Table 2.3.4-3 lists the heat exchanger subcomponents "shell" and "tubes" as separate component types subject to an AMR. However, other subcomponents of the lube oil coolers, such as tubesheets and channel heads (which perform a pressure boundary intended function), are not explicitly listed in LRA Table 2.3.4-3, as are the shell and the tubes. Furthermore, the cooling water system used to cool the lube oil has not been identified on the license renewal drawing LRA-1-5106A. Identify the coolers cooling water system, and justify why other heat exchanger internal subcomponents such as tubesheets and channel heads are not considered to be subject to an AMR, or else revise Table 2.3.4-3 to include these items.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

Section 2.3.4.4 Steam Generator Blowdown System

D-RAI 2.3.4.4-1

UFSAR Section 10.11.2 states that, "The steam generator blowdown is monitored for radioactivity prior to reaching either the startup or normal blowdown flash tanks. It is further stated that these radiation monitors close the steam generator blowdown system isolation valves upon detection of high radioactivity." However, the staff has examined the license renewal drawings for Units 1 and 2 referenced in LRA Section 2.3.4.4 and is unable to locate radiation monitors upstream of the flash tanks. In effecting closure of the isolation valves, these monitors support the intended function of containment isolation and, therefore, the passive, pressure boundary retaining housings for these monitors should be within the scope of license renewal and subject to an AMR. Provide information to locate the aforementioned radiation monitors and verify whether pressure boundary retaining housings for these components are subject to an AMR. If not, justify the exclusion of these radiation monitors from being subject to an AMR, or else revise Table 2.3.4-4 to include these items.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

Section 2.3.4.5 Main Turbine System

D-RAI 2.3.4.5-1

LRA Section 2.3.4.5 states that the only intended function of the mechanical components of the main turbine system is to effect a turbine trip (via the turbine control system) in response to an anticipated transient without scram or a station blackout event. Since a pressure boundary failure of the mechanical components of the control system will automatically cause a trip (a fail-safe condition), the pressure boundary intended function of these components is not required following these events. LRA Section 2.3.4.5 also states that no passive mechanical component of the main turbine system is subject to an AMR.

In accordance with the criteria of 10 CFR 54.4(a)(3), the mechanical components of the main turbine control system should be within the scope of license renewal. Since LRA Section 2.3.4.5 does not reference or provide any boundary drawings which show these components, the staff is unable to determine if all components which should be subject to an AMR have been identified. Provide a drawing or a text description of the main turbine system that identifies the mechanical components of the turbine control system which are subject to an AMR.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

Section 2.3.3.7 Fire Protection

D-RAI 2.3.3.7-1

The license renewal boundary drawings referenced in Section 2.3.3.7 did not identify the following fire protection (FP) systems and components as being within the scope of license renewal and subject to an aging management review (AMR). The staff believes that the FP systems and components described below are passive, long-lived, and perform a function that demonstrates compliance with 10 CFR 50.48 for fire protection. Provide basis for excluding the following FP systems and components from the scope of license renewal and subject to an AMR:

LRA Drawing LRA-12-5152D-0 Fire Protection Water - Auxiliary And Containment Buildings

1. A note at location D-6 states details on a deluge valve are found on DWG. 5152M, which was not included in the LRA and should be subject to an AMR. Clarify whether the deluge valve should be in scope or justify its exclusion.

LRA Drawing LRA-12-5152D-0 Fire Protection Water - Auxiliary And Containment Buildings

2. Control circuit instrumentation at location H-5 is connected to the fire protection system via a one inch water line and a normally open valve. Clarify whether these items should be in scope or justify their exclusion.

LRA Drawing LRA-12-5152E-0 Fire Protection Water - Charcoal Filters

3. Charcoal filters at locations C-6, E-8, J-8, and L-6 (shown in Details "B-3", "E-3", "J-3", and "M-3") have suppression components not highlighted as portions of the flow diagram within the scope of license renewal and subject to an AMR. Clarify whether these items should be in scope or justify their exclusion.

LRA Drawing LRA-1-5152J-0 Fire Protection Water - Turbine Building And Screen House Unit 1

4. Details D-6, D-9, K-3, K-6, and K-9 show what appear to be dry pipe sprinkler systems with the air accumulator tanks (compressors) not highlighted as portions of the flow diagram within the scope of license renewal and subject to an AMR. Details K-3 and K-6 also show valves and supply piping which are not highlighted as portions of the flow diagram within the scope of license renewal and subject to an AMR. Clarify whether these items should be in scope or justify their exclusion.

LRA Drawing LRA-2-5152K-0 Fire Protection Water - Turbine Building And Screen House Unit 2

5. Details C-6, H-6, L-6, D-9, and L-9 show what appear to be dry pipe sprinkler systems with the air accumulator tanks (compressors) not highlighted as portions of the flow diagram within the scope of license renewal and subject to an AMR. Detail L-6 also shows valves and supply piping to the diesel fire pump room which are not highlighted

as portions of the flow diagram within the scope of license renewal and subject to an AMR. Clarify whether these items should be in scope or justify their exclusion.

LRA Drawing LRA-12-5152L-0 Fire Protection Water - Turbine Building And Service Building

6. Detail G-4 shows what appears to be a dry pipe sprinkler system with the air accumulator tank (compressors) not highlighted as portions of the flow diagram within the scope of license renewal and subject to an AMR. Details G-7 and G-9 show the license renewal boundary established at a normally open valve. Clarify whether these items should be in scope or justify their exclusion.

LRA Drawing LRA-12-5152N-0 Fire Protection Water - Yard Piping Auxiliary Building

7. Detail G-3 shows what appears to be a dry pipe sprinkler system with the air accumulator tank (compressors) and dD-RAIn not highlighted as portions of the flow diagram within the scope of license renewal and subject to an AMR. Detail E-7 shows a valve and sprinkler supply for the Auxiliary Building Drumming Room and Rad. Waste Material Handling Building not highlighted as portions of the flow diagram within the scope of license renewal and subject to an AMR. Clarify whether these items should be in scope or justify their exclusion.

LRA Drawing LRA-12-5152R-0 Fire Protection Water - Miscellaneous Details

8. Detail L-3 shows a valve and sprinkler supply for the Containment Access Building not highlighted as portions of the flow diagram within the scope of license renewal and subject to an AMR. Clarify whether these items should be in scope or justify their exclusion.

LRA Drawing LRA-12-5152R-0 Fire Protection Water - Storage Tanks

9. Locations C-2 and D-6 show the Lake Township water supply not highlighted as portions of the flow diagram within the scope of license renewal and subject to an AMR. Clarify whether these items should be in scope or justify their exclusion.

LRA Drawing LRA-12-5152T-0 Fire Protection Water - Piping in Pump House

10. Locations H-9 shows the fire pump test header not highlighted as portions of the flow diagram within the scope of license renewal and subject to an AMR. Clarify whether these items should be in scope or justify their exclusion.

LRA Drawing LRA-12-5153-0 Fire Protection CO₂ - 17 Ton System

11. Locations F-6 and G-6 show the suppression system supply from normally open valves to the Computer Rooms not highlighted as portions of flow diagram within the scope of license renewal and subject to an AMR. Clarify whether these items should be in scope or justify their exclusion. Verify operator actions are in the procedures to close these valves when needed.

LRA Drawing LRA-2-5153G-0 Fire Protection CO₂ - Lower 4KV Areas

12. The Battery Room at location E-8 does not appear to have CO₂ protection. Verify some form of protection has been provided in this area or justify the exclusion of fire suppression.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.3.3.7-2

Design Basis Table 5.1 of the Fire Protection Program Manual (FPPM) did not identify the following fire protection systems and components as being part of the design basis. The staff believes that the FP systems and components described below are required to perform a function that demonstrates compliance with Requirement of Branch Technical Position 9.5-1, Appendix A (1977). Provide basis for excluding the following FP systems and components from the scope of the design basis:

FPPM Page 96 of 526 - Design Basis Table - Section E.2.b

1. The fire pump installation is said to be in accordance with NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection. No pressure maintenance pump was found on any LRA Drawings submitted. Verify a pressure maintenance pump is present and diagram it on the drawings. Clarify if it is within the scope of license renewal and subject to an AMR.

FPPM Page 105 of 526 - Design Basis Table - Section E.3.f

2. The manually operated foam suppression systems are discussed. No foam systems were found on any LRA Drawings submitted. Verify the location of any foam suppression systems and diagram them on the drawings. Clarify if they are within the scope of license renewal and subject to an AMR.

FPPM Page 106 of 526 - Design Basis Table - Section E.4

3. Halon systems are discussed in this section. No halon systems were found on any LRA Drawings submitted. Verify the location of any halon fire suppression systems and diagram them on the drawings. Clarify if they are within the scope of license renewal and subject to an AMR.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

Section 2.3.3.8 Auxiliary Systems Emergency Diesel Generator

D-RAI 2.3.3.8-1 (Fire Protection Aging Management)

LRA Drawing LRA-1-5151A, LRA-2-5151A, LRA-1-5151C and LRA-2-5151C

1. Location L-5 shows a 1½" vent line from the diesel fuel oil day tank through a flame arrester to the room. These drawings do not show the vent line and the flame arrester as being subject to an AMR. However, it appears that the intended function of the flame arrester is to ensure that vented gas will not lead to a fire. This intended function meets the criteria for 10 CFR 54.4(a)(3). Justify the exclusion of the flame arrester and vent line from being within the scope of license renewal and subject to an AMR in accordance with the requirements of 10 CFR 54.4(a)(3) and for 10 CFR 54.21(a)(1).

LRA Drawing LRA-1-5151A, LRA-2-5151A, LRA-1-5151C and LRA-2-5151C

2. A 2" overflow line at location L-6 is shown as excluded from being subject to an AMR. Justify the exclusion of this overflow line from being within scope of license renewal and subject to an AMR in accordance with the requirements of 10 CFR 54.4(a)(3) and for 10 CFR 54.21(a)(1).

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

Section 3.3.1 Auxiliary Systems

D-RAI 3.3.1-1 (Fire Protection Aging Management)

LRA Table 3.3.1 - Auxiliary Systems - Item 3.3.1-18

1. Verify all FP underground piping and fittings are included in this item and have an aging management program (AMP) consistent with NUREG-1801.

LRA Table 3.3.1 - Auxiliary Systems - Item 3.3.1-19

2. Verify if any dry sprinkler systems are included in this item and have an AMP consistent with NUREG-1801.

LRA Table 3.3.1 - Auxiliary Systems - Item 3.3.1-21

3. Section XI.M27 of NUREG-1801, Vol. 2, does not omit review of aging affects for treated water systems. Many of the aging effect/mechanisms listed are likely to occur even if raw water is not used as a primary source. Clarify the discussion points for this item.

LRA Table 3.3.2-7 - Fire Protection Systems - General

4. Notes F, G, H, I, J, and 3 all dictate that a portion of the item is not covered in NUREG-1801, but no means of aging management evaluation is proposed. Provide description of intended AMP.

LRA Table 3.3.2-7 - Fire Protection Systems - General

5. Hose valve stations are not specifically listed under any item in the summary of aging management. Provide item which covers all hose valve stations and verify compliance with Section XI.M27 of NUREG-1801.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

Section 2.4 Scoping and Screening Results: Structures

D-RAI 2.4-1

Based on its review of LRA Table 2.2-4, the staff identified the following four (4) issues:

- a. LRA Table 2.2-4 identifies structures that are not within the scope of license renewal. The note at the top of the table states "The UFSAR does not contain details of these structures." It is not obvious to the staff that all of the listed structures serve no intended function, e.g., the containment access building, gas cylinder storage building, hazardous storage building, and the loop feed enclosure. Please clarify and provide technical basis for the determination that they are not within the scope of license renewal.
- b. LRA Table 2.2-4 identifies the "Switchyard tower and pedestal for Unit 2 power delivery" as not being within the scope of license renewal. However, LRA Section 2.4.4 "Yard Structures" identifies "Tower: Unit 2 power delivery to switchyard" as within scope and subject to aging management review. Please resolve this apparent discrepancy.
- c. Please verify that Seismic II over I considerations are not applicable to structures listed in LRA Table 2.2-4 (e.g., meteorological and microwave towers).
- d. Please verify that at plant site, is there any site drainage or dewatering system that is relied on to control the groundwater level. If there is such a system, please identify whether this system (or systems) is within the scope of license renewal. Also, please provide the technical basis for either including it in or excluding it from the scope of license renewal. If within the scope, identify the applicable AMR references in LRA Section 3.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.4-2

Based on its review of LRA Sections 2.1, 2.2, 2.3, 2.4, and 2.5, the staff identified the following three (3) issues related to scoping and screening:

- a. It is not clear to the staff if the applicant has addressed thermal insulation on piping and structures in its scoping and screening evaluation.
- b. LRA Section 2.4.1 (Page 2.4-2) states that, "Seals are provided on the boundary of the lower and upper compartments and on the hatches in the operating deck to limit steam bypassing the ice condenser." However, LRA Table 2.4-1 does not appear to include these seals.
- c. LRA Section 2.4.1 identifies the equipment hatch as part of the containment structure evaluation boundary. However, LRA Table 2.4-1 does not appear to include the equipment hatch.

For each issue above, the applicant is requested to (1) identify if it is within the scope of license renewal; (2) if not within the scope of license renewal, provide the technical basis for that determination; (3) if within the scope of license renewal, identify the specific table and row in LRA Section 2.3 or 2.4 that includes the item; and (4) if within the scope of license renewal, identify the location in LRA Section 3 that addresses the AMR for the item.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.4-3

The staff has reviewed the following information submitted by the applicant, in order to identify all of the structures and components that are essential to ensure access to the ultimate heat sink (Lake Michigan), for safe shutdown following a design basis event:

LRA Section 2.3.3.2 (Essential Service Water),
LRA Section 2.3.3.11 (Screen Wash System),
LRA Section 2.4.3 (Turbine Building and Screenhouse),
UFSAR Section 9.8.3 (Service Water Systems),
UFSAR Section 10.6 (Circulating Water System),
UFSAR Figure 1.3-1 (Plot Plan), and
UFSAR Figure 10.6-1 (Circulating Water System).

As a result of this review, additional information is needed before the staff can reach a conclusion that all essential elements have been included in the LR scope and have been subject to aging management review.

LRA Section 2.4.3, under "Evaluation Boundaries," lists the structural elements that are evaluated for the turbine building and screenhouse. The following elements in the list appear to directly relate to the availability of cooling water for safe shutdown:

Screenhouse superstructure, which houses the ESW and CW pumps, as well as the traveling screens, stop logs, and bar grills

Structural components and commodities from, and including, the intake cribs up to but not including the CW pump intake piping

Structural components and commodities from, and including, the intake cribs up to but not including the ESW pump intake piping

Structural components and commodities from, and including, the discharge tunnels up to, and including, the discharge jets

Structural components and commodities that support CW pumps and intake piping

Structural components and commodities that support ESW pumps and intake piping

Structural components and commodities associated with the following: Intake cribs; Discharge piping; Forebay; Traveling screens; Trash baskets; Trash collection; Sluice gates; De-icing tunnels; Discharge tunnels; Screenhouse; Piping supports, pump supports, baseplates, and anchors contained within the screenhouse.

However, many of the elements listed above are not specifically identified in LRA Table 2.4-3, "Turbine Building And Screenhouse Components Subject to Aging Management Review," and only two (2) items in the table specify an intended function "SCW" (provide source of cooling water for plant shutdown). These are intake corrugated steel piping and intake crib steel framing and plate. LRA Table 2.4-5, "Structural Commodities Components Subject to Aging Management Review," does not list any components specifically related to the availability of cooling water for safe shutdown.

Therefore, the applicant is requested to:

- (1) List all structures and components depicted in UFSAR Figure 10.6-1 (Circulating Water System), and any additional structures and components, that are essential to ensure the availability of cooling water for safe shutdown, up to (but not including) the ESW pumps;
- (2) Correlate the list developed in response to (a) above with the structures and components identified in LRA Section 2.4.3 "Evaluation Boundaries;"
- (3) For each listed structure and component, identify the applicable line item in LRA Table 2.4-3 or LRA Table 2.4-5; and
- (4) If it is not included in either of these tables, identify where it is addressed in the LRA; Identify the applicable AMR reference for each structure and component.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.4-4

It is not clear to the staff about the scope of load handling systems included in the Cook license renewal scope. LRA Section 2.3.3.12, "Material/Equipment Handling" and "Refueling", identify specific cranes that are in the scope of license renewal, and refer to LRA Section 2.4 for the evaluation. LRA Sections 2.4.1, 2.4.2, 2.4.3, and 2.4.5 all identify load handling systems under "Evaluation Boundaries" and/or in the associated Table 2.4-x. However, there is not a one-to-one correspondence between all of the cranes listed in LRA Section 2.3.3.12 and the information in LRA Section 2.4. Also, it is not clear if there are additional load handling systems in the LR scope and covered by LRA Section 2.4.

With the concerns stated above, the applicant is requested to: (1) provide a listing of all load handling systems in the LR scope; (2) identify specific components that are subject to an AMR, for each in-scope load handling system; (3) identify the specific line item in LRA Tables 2.4-1, 2.4-2, or 2.4-5 that covers each component; and (4) identify the applicable AMR reference for each component.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

D-RAI 2.4-5

Section 2.4 of the LRA does not describe the cable feed-through assembly, which is part of containment electrical penetrations. This assembly serves a pressure boundary intended function. Therefore, the applicant is requested to clarify whether the cable feed-through assembly is in scope or not. If it is in scope, identify the applicable table number and component name in LRA Section 2.4, and the applicable AMR table number and component name in LRA Section 3.5. If it is not in scope, provide the justification for its exclusion.

Status: The staff discussed the applicant's proposed response and had no further comment at the meeting.

**D-RAIs NOT SUBMITTED BUT
DISCUSSED FOR CLARITY AND UNDERSTANDING**

Section 2.3.1.1 Reactor Vessel and CRDM

D-RAI 2.3.1.1-1

In Table 2.3.1.2-1 of the LRA, Note 1, it was stated that, although the vessel lifting lugs do not directly support any intended function, they are included for completeness. The staff, however, believes that the subject component should be in scope in accordance with 10 CFR 54.4(a)(2), because its failure may prevent some of the safety related components from performing their intended functions if the RPV head drops while being lifted. Please state the true basis, consistent with the rule, for which components are determined to be in scope requiring aging management.

Status: I&M indicated that the question is clear.

2.3.1.2 Reactor Vessel Internals

D-RAI 2.3.1.2-1

On page 11, Chapter 3, of the UFSAR for Unit 1 (and page 29 for Unit 2), it is stated that, a small amount of inlet water is directed into the vessel head plenum to provide cooling of the vessel head. According to WCAP-14577-A, the components associated with this cooling system should be in scope of license renewal requiring aging management. Since it appears that the subject components were not identified in Table 2.3.1-2 of the LRA, please confirm whether the components associated with RPV head cooling system are within the scope requiring aging management.

Status: I&M indicated that the question is clear.

Section 2.3.1.3 Class 1 Piping, Valves and Reactor Coolant Pumps

D-RAI 2.3.1.3-1

Staff position on reactor vessel flange leak-off lines is that unless a plant specific justification is provided, the components should be in scope requiring aging management. Please confirm whether any of the component type listed in Table 2.3.1-3 of the LRA include the subject

components. If not, then the subject components should be identified as within scope requiring aging management, or provide a plant specific justification.

Status: I&M indicated that the question is clear.

D-RAI 2.3.1.3-2

Pursuant to 10 CFR 50, Appendix R, Section III O, the reactor coolant pump (RCP) lube oil collection subsystem is designed to collect oil from the RCPs and drain it to a collection tank to prevent a fire in the Containment Building during normal plant operations. The staff believes that the subsystem and the tank should be within scope requiring aging management. However, it appears that the subject components were not identified in the LRA (Tables 2.3.1-3); and therefore, the staff requests the applicant to provide an explanation.

Status: I&M indicated that the question is clear.

Section 2.3.1.4 Pressurizer

D-RAI 2.3.1.4-1

Intergranular and transgranular type stress corrosion cracking were observed in the past in the welded section of pressurizer instrumentation nozzles in Westinghouse PWRs. Please confirm whether an aging management review (AMR) was performed for the welded portion of instrumentation nozzles.

Status: I&M indicated that the question is clear.

D-RAI 2.3.1.4-2

LRA Drawing 5128A and Table 2.3.1-4 did not include the pressurizer relief/quench tank within the scope. In order for the staff to make a determination whether the exclusion was justified, the staff requests the applicant to provide the following additional information:

- a. Does the failure of pressurizer relief tank prevent effective pressure control or prevent depressurization through the relief/safety valves?
- b. In the event the relief tank is not functional, and as a result, high pressure and high velocity steam need to be discharged into the containment, what are the

consequences? The response should include discussions on potential of failure of other safety related components by the discharging steam.

Status: I&M indicated that the question is clear.

D-RAI 2.3.1.4-3

In Table 2.3.1-4 of the LRA, spray head was listed as a component type subject to an AMR having an intended function of pressure control; and in page 2.3-10 of the LRA, it is stated that the spray head and heaters provide pressure control during certain design basis events (DBE). But the LRA drawing no. 5128A shows the component not in scope. Please clarify. If the spray head was excluded from the scope, then the following additional information is requested:

- a. How do you reconcile the fact that the component is relied upon for pressure control function during certain DBE, but the same component does not require any aging management?
- b. The staff requests the applicant to clarify if the current licensing basis (CLB) for fire protection (FP) complies with certain sections of Appendix R, particularly Section III G, which provides the requirements for the fire protection safe shutdown capability. Discuss if the pressurizer spray head and associated piping are credited and relied upon in the fire protection safe shutdown analysis to bring the plant to cold shutdown conditions within a given time for compliance with Appendix R. If it is credited in the fire protection safe shutdown analysis, the pressurizer spray head and associated piping would satisfy 10 CFR 50.48, Appendix R requirements; and therefore, should be included within the scope of license renewal. The specific intended function of the subject components which meets the 10 CFR 54.4(a)(3) requirements is the spray function, and the particular components which help perform this function are the section of piping and the spray head located inside the pressurizer. Note that the subject components do not have pressure boundary function. The staff requests the applicant to describe whether the loss of spray function can make it impossible to bring the plant to cold shutdown conditions within the given time for compliance with Appendix R. If so, then the staff requests that the spray head and the associated piping inside pressurizer having the spray function be included within the scope requiring aging management so that it should provide a reasonable assurance that an adequate spray function will be maintained inside the pressurizer during the extended period of operation.

Status: I&M indicated that the question is clear.

Section 2.3.1.5 Steam Generators

D-RAI 2.3.1.5-1

In Table 2.3.1-5 of the LRA, the staff notes that the SG partition (divider) plate has not been identified as within the scope of license renewal requiring aging management. The staff believes that the subject component should be identified to be within the scope because SG partition plate is located in the lower head of each SG and separates the hot leg primary fluid from the cold leg primary fluid. Reactor coolant is located on both sides of the SG partition plate. The staff's understanding is that the intended function of SG partition plates is flow distribution, i.e., forcing the hot leg primary flow through the SG tubes, and thereby, enabling the SG to perform its primary function of heat transfer. As a result, failure of partition plate will degrade the heat transfer function of the SG. Degradation of the heat transfer function of SG has several safety consequences such as, inability of the reactor to safely shutdown, loss of natural circulation heat removal through the SG which may be credited for prevention or mitigation of design-basis events, accidents, and/or the Commission's regulated events. In addition, the staff believes that there are potential for loose parts being originated from a degraded partition plate due to aging, which may lead to flow blockage of the SG tubes, and thus causing degradation of SG heat transfer function. Any of these potential consequences may impact the criteria identified in 10 CFR 54.4(a)(1), (2), & (3), and may therefore, require the applicant to include partition plates within the scope of license renewal.

On the basis of the above discussion, the staff requests the applicant to provide the following additional information, if the applicant continues to believe that the subject component should not be in scope of license renewal:

- a. Does failure of SG partition plates impact safe shutdown operation, as required by 10 CFR 54.4(a)(1)(ii)?
- b. Plants may be required to attain cold shutdown condition in a specified time period following certain design-basis events or Commission's regulated events such as, fire event and station blackout. Describe any such requirements that may be impacted by SG partition plate failure.
- c. Is natural circulation credited to prevent or mitigate design-basis events, accidents, or Commission's regulated events, as defined in 10 CFR 54.4(a)(1)(iii) and 10 CFR 54.4(a)(3)?
- d. What are potential safety consequences of flow blockage of SG tubes by loose parts originating from partition plates degraded due to aging affects?

Status: I&M indicated that the question is clear.

D-RAI 2.3.1.5-2

The staff notes that SG feedwater ring and “J” tubes were not identified in Table 2.3.1-5 of the LRA as within the scope of license renewal requiring aging management. The staff requests the applicant to provide the following additional information in order to conclude whether the exclusion of subject components from scope was justified:

- a. In page 19 (Chapter 4) of the UFSAR, it is stated that, the “J” tubes prevent rapid drainage of the feedwater ring due to a drop in steam generator water level and thus eliminate or reduce the possibility of water hammer in the feedwater line. On the basis of the above statement made in the UFSAR, it appears that the subject components are needed to prevent or mitigate accidents; and therefore, should be in scope in accordance with 10 CFR 54.4(a)(1)(iii).
- b. Explain, if the components were relied upon to demonstrate compliance during a design basis event, such as feedwater line break accident, and/or Commission’s regulated events.
- c. Explain, why failure of the components will not prevent in-scope components within the SG from performing their intended functions.
- d. Explain, whether the subject components are covered under any existing inspection and/or monitoring programs, such as SG Integrity program.

Status: I&M indicated that the question is clear.

Section 2.3.2.3 Emergency Core Cooling

D-RAI 2.3.2.3-1

In page 11 (Chapter 6) of the UFSAR, it was stated that, screen assemblies and vortex suppressors are used in the containment sump which provides water for the ECCS recirculation phase, and one of the intended functions is to protect the ECCS pumps from debris and cavitation due to harmful vortex following an LOCA. Although, the LRA (Table 2.4-1) listed the screens (fine and coarse) as subject to AMR, the vortex suppressors and their intended function, which also should require an AMR, was not identified. Please explain.

Status: I&M indicated that the question is clear.

Section 2.3.3.5 Chemical and Volume Control

D-RAI 2.3.3.5-1

In page 2.3-63 (CVCS) of the LRA, it is stated that, the license renewal drawings do not indicate components that are within the scope based only on 10 CFR 54.4(a)(2). The staff, however, understands that in accordance with 10 CFR 54.21(a)(1), the applicant is required to identify and list all the systems, structures and components (SSCs) which have been determined to be subject to an AMR. Please clarify.

Status: I&M indicated that the question is clear.