From: Kimberly Green
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Date: 11/7/2007 12:28:57 PM
Subject: Draft RAIs on Balance of Plant (Auxiliary and Power Conversion) Systems
cc: "Stanley Gardocki" <SJG1@nrc.gov>

Donna,

Attached are draft requests for additional information related to the Indian Point license renewal application. Please review and let me know when Entergy is available to discuss. The purpose of the telecon will be to obtain clarification on the staff's questions. We have tentatively set aside the following blocks of time for discussion:

Thursday, November 8, 3:30 - 5:00 pm EST
Friday, November 9, 9:00am - 12:00 pm EST
Friday, November 9, 1:00 - 4:00 pm EST.

Please let me know if any of the above work. If not, we can try for Tuesday, Nov. 13th.

Thanks,

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From: Kimberly Green

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2.2 PLANT LEVEL SCOPING RESULTS

D-RAI 2.2A-1 (Unit 2)

License Renewal Application (LRA) Table 2.2-2-IP2, "Mechanical Systems Not within the Scope of License Renewal," identifies that the hot penetration cooling system is excluded from the scope of license renewal and references Updated Final Safety Analysis Report (UFSAR) Section 5.1.4.2.2 as its basis. UFSAR Section 5.1.4.2.2 provides a local area temperature limit of 250 degrees Fahrenheit (ºF) and states that cooling is provided for hot penetrations through the use of air-to-air heat exchangers.

Cooling of hot containment penetrations minimizes age-related heat-induced degradation of local concrete surrounding the penetration. Therefore, it may have an intended function in accordance with 10 CFR 54.4(a). Justify the exclusion of the hot penetration cooling system from the scope of license renewal.

D-RAI 2.2B-1 (Unit 3)

LRA Table 2.2-2-IP3, "Mechanical Systems Not within the Scope of License Renewal" identifies that the breathable air system is excluded from the scope of license renewal and references UFSAR Section 9.10 as its basis. UFSAR Section 9.10 states that the breathable air system is a non-category I system, except for the penetration into containment, where breathable air is provided inside containment through a spare penetration line.

Confirm whether the breathable air containment penetration is within scope of license renewal or justify its exclusion.

2.3.0 Scoping and Screening Results: Mechanical Systems

D-RAI 2.3.0-1 (Unit 2 and Unit 3)

License renewal drawings LRA-9321-2028 and LRA-9321-20283, for the Unit 2 and Unit 3 emergency diesel generator (EDG) jacket water cooling system, and LRA-9321-2030 and LRA-9321-20303, for the Unit 2 and Unit 3 EDG fuel oil system, identify multiple flexible piping connections as not long-lived components. In addition, LRA Section 2.1.2.1.3, "Mechanical System Drawings," states that flexible elastomer hoses/expansion joints are periodically replaced, i.e., not long-lived, and are indicated as such on the drawings.

"Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants," NUREG-1800, Rev. 1, Table 2.1-3, "Specific Staff Guidance on Screening," identifies short-lived components as consumables. Further, the table states that short-lived components are periodically replaced. For the flexible connections identified above, describe the programs that manage their inspection and replacement.

2.3.3.1 Spent Fuel Pit Cooling

D-RAI 2.3B.3.1-1 (Unit 3)

The Indian Point 3 UFSAR, page 91, references a backup spent fuel cooling system that operates in parallel with the normal spent fuel pit (SFP) cooling system during refueling activities. The normal SFP cooling system is in scope for 10 CFR 54.4(a)(1) with the intended function of providing a pressure boundary for the component cooling system and the safety injection system, and 10 CFR 54.4(a)(2) for physical interaction.

Components from the backup spent fuel cooling system are not identified as being within scope of license renewal. Explain why the components from the backup spent fuel cooling system are not in scope, or revise LRA Tables 2.3.3-1-IP3 and 3.3.2-1-IP3 to include these components as types subject to an aging management review (AMR).

2.3.3.14 Emergency Diesel Generator System

D-RAI 2.3A.3.14-1 (Unit 2)

License renewal drawing LRA-9321-2028 for the Unit 2 jacket water to diesel generators identifies that the jacket water pumps (at locations H-4, E-4, and B-4) for diesel engine no. 21, 22, and 23 respectively, are not subject to AMR in accordance with 10 CFR 54.21(a) because they are “Not a Long Lived Component.”

NUREG-1800, Rev. 1, Table 2.3-2, “Examples of Mechanical Components Screening and Basis for Disposition,” provides examples of passive, long-lived components such as diesel engine jacket water, skid-mounted equipment. Confirm that the jacket water pumps are short-lived components and describe their method for periodic replacement.

D-RAI 2.3B.3.14-1 (Unit 3)

License renewal drawing LRA-9321-20283 for the Unit 3 jacket water to diesel generators identifies that the jacket water pumps (at locations B-3, B-5, and B-7) for diesel engine no. 31, 32, and 33, respectively, are not subject to aging management review in accordance with 10 CFR 54.21(a) because they are “Not a Long Lived Component.”

NUREG-1800, Rev. 1, Table 2.3-2, “Examples of Mechanical Components Screening and Basis for Disposition,” provides examples of passive, long-lived components such as diesel engine jacket water skid mounted equipment. Confirm that the jacket water pumps are short-lived components and describe their method for periodic replacement.

2.3.3.17 City Water System

D-RAI 2.3A.3.17-1 (Unit 2)

License renewal drawing LRA-227551 shows a small portion of the piping, 2 inch city water (CW) Line #35 (location A-4), color-coded in purple, indicating it is within the scope of license renewal and subject to AMR under the city water system. The piping identified makes no reference to a continuation drawing. The area of the drawing (Detail D) references drawing 9321-F-2510, which was not provided to the staff.

This small section of piping implies a continuation onto another drawing that may contain additional components that should be within the scope of license renewal. Explain why drawing 9321-F-2510 is not listed on page 2.3-142 of the IP LRA under license renewal drawings for the city water system; or, provide this and any other continuation drawings that contain components within the scope of license renewal.

D-RAI 2.3A.3.17-2 (Unit 2)

License renewal drawing LRA-9321-4006 shows piping on the drawing color-coded in purple, indicating the piping is within the scope of license renewal and subject to AMR for the city water system. At valve FP-1134 (C-1), FP-338 (E-2), FP-880 (H-3), and FP-1264 (H-3), the system designation changes from the city water system to the fire protection system. At valve FP-1227 (D-1), the system designation changes from the city water system to the auxiliary feedwater system.

For these changes in system designations identified above, the color coding remains purple, indicating component subject to AMR under the scope of the city water system. In order to ensure that there are no omissions, explain how the color coding applies to the multiple systems identified above.

D-RAI 2.3A.3.17-3 (Unit 2)

In the upper left corner on the drawing, LRA-227552 shows pipe lines FP-6077-6" DH-2 and FP-6075-6" DH-2 color-coded in purple, indicating they are within the scope of license renewal and subject to the AMR for the city water system. With the "FP" designation, they may be construed to be part of the fire protection system.

In order to ensure that there are no omissions, explain why the two Fire Protection lines are shown in purple as being part of the city water system for license renewal instead of green for the fire protection water system.

D-RAI 2.3A.3.17-4 (Unit 2)

License renewal drawing LRA-227781 at location A-1 shows a short piece of piping on the drawing color-coded in purple, indicating it is within the scope of license renewal and subject to AMR for the city water system. This short piece of city water system piping makes reference to drawings 9321-F-2593 and 9321-F-2696 for upstream continuation piping. Since this short piece of city water system piping is within the scope of license renewal and continues on the upstream drawings 9321-F-2593 and 9321-F-2696, then these drawings should also have city water system piping within the scope of license renewal. These drawing are not listed on page 2.3-142 of the LRA, which are the license renewal drawings for the Unit 2 and Unit 3 city water system.

Explain why drawings 9321-F-2593 and 9321-F-2696 are not listed on page 2.3-142 of the IP LRA under license renewal drawings for the city water system.

D-RAI 2.3A.3.17-5 (Unit 2)

On page 2.3-140 of the LRA for the city water system, it is stated that the Unit 2 city water system has the intended function for 10 CFR 54.4(a)(3) of providing a supply of water to fire protection system components, including the fire pumps, fire hydrants, hose reel stations inside

containment, fire water tank, and various sprinkler and deluge systems. License renewal drawing LRA-9321-2018 at locations C-6 and D-6 shows piping color-coded blue, indicating it is within the scope of license renewal and subject to AMR for the city water system that continues onto additional drawings. One example of this is city water system drawings that refer to drawings 9321-F-2678, 9321-F-2695, and 9321-F-2696 for downstream continuation piping, which are not listed on page 2.3-142. These components would be necessary for the city water system to accomplish its intended function as identified above, (i.e., how the hose reel stations inside containment are supplied water from the Unit 2 city water system). Hence, there may be additional drawings showing city water system components that have not been identified in the LRA.

Provide drawings 9321-F-2678, 9321-F-2695, and 9321-F-2696 and other drawings, as necessary, showing the LRA scope of the Unit 2 city water system.

D-RAI 2.3A.3.17-6 (Unit 2)

LRA drawing LRA-9321-4006, for the city water system, at locations C-1 and E-2 shows a fire hydrant color-coded in purple, indicating it is within the scope of license renewal and subject to AMR because it supports an intended function in accordance with 10 CFR 54.4(a). LRA Table 2.3.3-19-7-IP2, for city water system does not include the component type “hydrant.”

10 CFR 54.21(a)(1) requires the applicant to identify and list those components subject to AMR. Identify where the hydrants in the Unit 2 city water system are evaluated for aging management.

D-RAI 2.3B.3.17-1 (Unit 3)

On page 2.3-141, the LRA states that the Unit 3 city water system (also called city water makeup system) has the intended function for 10 CFR 54.4(a)(3) of providing water supply to the fire protection tanks. On license renewal drawing LRA-9321-20343-002, for the city water system, the portion of the city water system piping connecting to fire water storage tanks 1 and 2 beyond the isolation valves 84, PCV-1603, 96, 94, 80, PCV-1602, 93, and PCV-1612 is color-coded in purple, indicating it is within the scope of license renewal and subject to AMR. Upstream of these isolation valves, the city water system connects to the 16 inch main for the Village of Buchanan, which contains piping required to provide the water supply function.

Explain why all the city water system piping from the 16" main for the Village of Buchanan to the fire water storage tanks is not highlighted in purple, indicating it is within the scope of license renewal for 10 CFR 54.4(a)(3) and subject to AMR.

D-RAI 2.3B.3.17-2 (Unit 3)

On page 2.3-141, the LRA for the city water system states that the Unit 3 city water system has no intended functions for 10 CFR 54.4(a)(1). However, on license renewal drawing LRA-9321-20343-001, for the city water system there is a general note, which states under the heading Class I piping: (1) above ground city water make-up to closed cooling water system - expansion tank in control room and diesel generator jacket water expansion tank and (2) City water from Unit 1 tie into auxiliary feedwater pumps suction. Also, under the heading Class III piping in the general notes it is stated: (1) above ground city water make-up to closed cooling water system - head tank in turbine building, and (2) above ground city water supply to nuclear services.

In addition, on license renewal drawing LRA-9321-20183-001 for the condensate & boiler feed pump suction system, there is a small portion of the city water system piping shown on the drawing in area H-6. This portion of city water system piping is color-coded in purple indicating it is within the scope of license renewal and subject to AMR. On the drawing, this portion of city water system piping is identified as Class I. By definition, all Class I and Class III piping should have intended functions in accordance with 10 CFR 54.4(a)(1).

a. Explain why the Class I and III piping for the city water system on drawings LRA-9321-20343-001 and LRA-9321-20183 do not have a 10 CFR 54.4(a)(1) intended function.

b. Explain why the city water piping up to the closed cooling water system expansion tank, diesel generator jacket water expansion tank, closed cooling water system head tank and nuclear services on license renewal drawing LRA-9321-20343-001 is not color-coded in purple indicating it is in the scope of license renewal and subject to AMR.

c. Explain why the city water system piping that continues from license renewal drawing LRA-9321-20343-001 onto drawing 9321-H-20283 for supplying the 40-gallon diesel generator jacket water expansion tanks is also not highlighted in purple as within the scope of license renewal and subject to AMR.

2.3.4.1 Main Steam System

D-RAI 2.3A.4.1-1 (Unit 2)

LRA Drawing LRA-9321-2017, showing the Unit 2 main steam system supply to the steam turbine driven auxiliary feed pump turbine, indicates valves PCV-1310A, PCV-1310B (both G-5), PCV-1139 (H-6), and HCV-1118 (I-6) within the scope of license renewal and subject to aging management review. These valves are air operated valves required for operation of the auxiliary feedwater system, with intended functions in accordance with 10 CFR 54.4(a)(1).

Explain the exclusion of the valve's air operators and their associated solenoid operated valves (SOVs) and tubing from being subject to aging management.

D-RAI 2.3A.4.1-2 (Unit 2)

License renewal Drawings LRA-9321-2017 and LRA-227780, for the Unit 2 main steam system, show the following valves within the scope of license renewal and subject to aging management review: on LRA-9321-2017: PCV-1134 (D-4), PCV-1135 (D-5), PCV-1136 (D-3), PCV-1137 (D-3), MS-1-21 (E-4), MS-1-22 (E-6), MS-1-23 (E-3), MS-1-24 (E-2), and on LRA-9321-227780: PCV-1120 (C-5), PCV-1121 (C-4), PCV-1122 (A-4), PCV-1123 (A-4), PCV-1124 (F-5), PCV-1125 (F-5), PCV-1126 (C-4), PCV-1127 (C-4), PCV-1128 (H-5), PCV-1129 (H-4), PCV-1130 (F-4), PCV-1131 (F-4). This list is intended to be a representation, additional valves about which this RAI applies may exist.

These valves are air operated and have associated air cylinders and air tubing that have been excluded from the scope of license renewal. Explain why the instrument air system, their tubing, and associated SOVs to these valves are not within the scope of license renewal in accordance with 10 CFR 54.4(a).

D-RAI 2.3B.4.1-1 (Unit 3)

License renewal drawing LRA-9321-20173, for the Unit 3 main steam system, shows valves SOV-1310, SOV-1311 (both G-6), SOV-1139-1, SOV-1139-2 (both H-6), and HCV-1118 (H-5) and their connection tubing not subject to aging management in accordance with 10 CFR 54.21(a).

The valves are required for operation of the auxiliary feedwater system, which has intended functions in accordance with 10 CFR 54.4(a)(1). Explain the exclusion of these SOVs and their associated piping from being subject to aging management.

D-RAI 2.3B.4.1-2 (Unit 3)

LRA Drawing LRA-9321-20173, for the Unit 3 main steam system, shows the following valves within the scope of license renewal and subject to aging management review: PCV-1120 (G-4), PCV-1121 (G-4), PCV-1122 (E-5), PCV-1123 (E-5), PCV-1124 (G-3), PCV-1125 (F-3), PCV-1126 (D-4), PCV-1127 (E-4), PCV-1128 (G-1), PCV-1129 (F-1), PCV-1130 (E-3), PCV-1131 (E-3), PCV-1134 (F-7), PCV-1135 (G-7), PCV-1136 (E-7), PCV-1137 (D-7), MS-1-31 (F-7), MS-1-32 (G-7), MS-1-33 (E-7), MS-1-34 (D-7). This list is intended to be a representation, additional valves about which this RAI applies may exist.

These valves are air operated and have associated SOVs and air tubing that have been excluded from the scope of license renewal. Explain why the instrument air system to these valves are not within the scope of license renewal in accordance with 10 CFR 54.4(a).

2.3.4.2 Main Feedwater System

D-RAI 2.3A.4.2-1 (Unit 2)

License renewal drawing LRA-9321-2019 identifies that valves FCV-417-L, FCV-417, FCV-427-L, FCV-427, FCV-437-L, FCV-437, FCV-447-L, FCV-447, BF2-21, and BF2-22, for the Unit 2 main feedwater system, are within the system evaluation boundary.

Although the aforementioned valves are passive and long-lived, they are not highlighted indicating that they are not subject to aging management in accordance with 10 CFR 54.21(a). Explain the valves' exclusion from aging management.

D-RAI 2.3B.4.2-1 (Unit 3)

License renewal Drawing LRA-9321-20193 identifies that valves FCV-417-L, FCV-417, FCV-427-L, FCV-427, FCV-437-L, FCV-437, FCV-447-L, FCV-447, BF2-31, and BF2-32, for the Unit 3 main feedwater system are within the system evaluation boundary.

Although the aforementioned valves are passive and long-lived, they are not highlighted indicating that they are not subject to aging management in accordance with 10 CFR 54.21(a). Explain the valves' exclusion from aging management.

2.3.4.5 Water Treatment Plant

D-RAI 2.3A.4.5-1 (Unit 2)

In section 2.3.4.5, the LRA states that water treatment plant components are credited for the auxiliary feedwater (AFW) pump fire event to support safe shutdown in the event of a fire in the Unit 2 AFW pump room. The source of water is the Indian Point Unit 1 (IP1) condensate storage tanks, which makes up to the IP2 hotwell dump and condensate transfer pump. These components have an intended function for 10CFR54.4(a)(3) to support safe shutdown in the event of a fire, and for 10CFR54.4(a)(2) for physical interaction. License renewal drawings do not identify the flow path or the associated components. LRA Section 3.4.2, Results, describes the applicant's approach to exclude these components from aging management review based upon the premise that the components in the systems required to supply feedwater to the steam generators during the short duration of the fire event are in service at the time the event occurs or their availability is checked daily. Therefore, integrity of the systems and components required to perform post-fire intended functions for at least one hour is continuously confirmed by normal plant operation.

By concluding that this flow path integrity is continually verified during normal plant operation, the applicant is stating no aging management program is required to assure the post-accident intended function. However, the IP1 condensate storage tanks are only subject to intermittent service; they are not normally in service as a normal flow path. Hence, the approach to exclude the components on this flow path is not consistent with the suggested methodology.

The components in this flow path that are long lived and have an intended function, are required to be within the scope of license renewal and subject to aging management according to 10 CFR 54.21(a)(1). Describe the components in this flow path and how they will be included in the aging management review.