October 15, 2009

Mr. Jon Franke, Vice President
Crystal River Nuclear Plant (NA1B)
ATTN: Supervisor, Licensing & Regulatory Programs
15760 W. Power Line Street
Crystal River, FL 34428-6708

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE CRYSTAL RIVER UNIT 3 NUCLEAR GENERATING PLANT, LICENSE RENEWAL APPLICATION (TAC NO. ME0274)

Dear Mr. Franke:

By letter dated December 16, 2008, Florida Power Corporation submitted an application pursuant to Title 10 of the *Code of Federal Regulations* Part 54, to renew the operating license for Crystal River Unit 3 Nuclear Generating Plant (CR-3), for review by the U.S. Nuclear Regulatory Commission (NRC or the staff). The staff is reviewing the information contained in the license renewal application and has identified, in the enclosure, areas where additional information is needed to complete the review. Further requests for additional information may be issued in the future.

Items in the enclosure were discussed with Mr. Bob Reynolds, and a mutually agreeable date for the response is within 30 days from the date of this letter. If you have any questions, please contact me at 301-415-3733 or by e-mail at robert.kuntz@nrc.gov.

Sincerely,

/RA/

Robert F. Kuntz, Sr. Project Manager
Projects Branch 2
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-302

Enclosure:
As stated

cc w/encl: See next page

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ATTN: Supervisor, Licensing & Regulatory Programs
15760 W. Power Line Street
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Robert F. Kuntz, Sr. Project Manager
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DATE	9/28/09	10/5/09	10/5/09	10/14/09	10/15/09

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Letter to J. Franke from R. Kuntz, dated October 15, 2009

DISTRIBUTION:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE CRYSTAL RIVER UNIT 3 NUCLEAR GENERATING PLANT, LICENSE RENEWAL APPLICATION (TAC NO. ME0274)

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Crystal River Nuclear Generating Plant,
Unit 3

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cc:

Mr. Brian C. McCabe
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REQUEST FOR ADDITIONAL INFORMATION

LICENSE RENEWAL APPLICATION FOR

CRYSTAL RIVER UNIT 3

DOCKET NO: 50-302

RAI 2.3-01 General Items

Background: Title 10 of the *Code of Federal Regulations* (10 CFR) 54.4(a) provides criteria for determining whether systems or components are in scope for license renewal.

Issue: Sections of the Crystal River Unit 3 Nuclear Generating Plant (CR-3) license renewal application (LRA) indicate that parts of various systems are in scope because they contain components that are relied upon during postulated fires per 10 CFR 54.4(a)(3). Section 2.1 of the CR-3 LRA describes the process for selecting components that are in scope under 10 CFR 54.4(a)(3). However, numerous systems identified with components that are included in scope under 10 CFR 54.4(a)(3) to operate during postulated fires contain no discussion of the (a)(3) components in the CR-3 LRA system description text, the CR-3 final safety analysis report (FSAR) discussion, or on the CR-3 LRA drawings provided. It is not possible to identify components that are included in scope under 10 CFR 54.4(a)(3) for components that are relied upon during postulated fires without an understanding of the components that were selected by the process. Specific examples of systems with components that are not identified within scope under 10 CFR 54.4(a)(3) include:

- 2.3.3.25 Circulating Water System
- 2.3.3.28 Fuel Oil System
- 2.3.3.32 Demineralized Water System
- 2.3.3.38 Instrument Air System
- 2.3.3.42 Make Up and Purification System
- 2.3.4.3 Condensate Chemical Treatment System
- 2.3.4.4 Condensate System
- 2.3.4.18 Secondary Plant System

Request: Provide sufficient information to permit the staff to identify all portions of the systems within the license renewal boundary as specified in 10 CFR Section 54.4(a)(3).

ENCLOSURE

RAI 2.3-02 **General Items**

Background: 10 CFR 54.21(a)(1) requires the applicant to provide a list of structures and components subject to an aging management review (AMR). The staff reviews the LRA, FSAR, and license renewal boundary drawings to verify that the list of components provided for each system is complete.

Issue: The CR-3 LRA does not specify which version of the FSAR is to be used as a reference. The last revision of the FSAR submitted to the NRC was Revision 30. Subsequently, a complete copy of Revision 31 of the CR-3 FSAR was provided following the June 2009 NRC site audit. As a result of the June 2009 NRC site audit, it was determined that most of the calculations for the CR-3 LRA were performed using CR-3 FSAR Revision 30.

Request: Provide revisions to the FSAR that would affect any systems within the scope of license renewal since Revision 30.

RAI 2.3-03 **General Items**

Background: 10 CFR Section 54.21(a)(1) requires applicants to identify and list components subject to an AMR. The staff confirms inclusion of all components subject to an AMR by reviewing the components within the license renewal boundary.

Issue: During the scoping and screening review process, the continuation from one drawing to another could not be established. Drawing numbers and/or locations for continuations were not identified and could not be located where identified, the continuation drawing was not provided, and piping expected to be in scope based on one drawing led to a different conclusion on a connecting drawing. Given below is a table that indicates the systems identified with these drawing inconsistencies.

License Renewal Application (LRA) Section/Drawing Number	Continuation Location / Issue
2.3.3.24	
INDUSTRIAL COOLING SYSTEM	
LRA-302-762-LR, SH01	Four feedwater (FW) system relief valves are shown at locations E-4 (connected to CIHE-2A and 2B), F-3 (near CIV-279), and G-3 (near CIV-280). The relief line from each of these valves is shown to be within scope of the license renewal. However, the lines from these four valves are not continued on another

	CR-3 LRA drawing, nor do they terminate at another valve or structure.
2.3.3.26	
EFP-3 DIESEL AIR STARTING SYSTEM	
LRA-302-778-LR, SH01	Two lines connected to two solenoid operators in locations C-6 and E-6 are highlighted in scope for license renewal. However they are not continued on another CR-3 LRA drawing, nor do they terminate at another valve or structure.
LRA-302-778-LR, SH01	The drawing depicts four lines to the building sump pump as included in scope of license renewal under 10 CFR 54.4(a)(1). The connecting drawing is not noted. Therefore, it is not possible to evaluate the interaction of the sump pump piping on the EFP-3 diesel air starting system. CR-3 LRA drawing 302-114-LR, SH02, depicts an EFP area sump, but it is not clear if this is the building sump referenced on CR-3 LRA drawing 302-778-LR, SH01.
2.3.3.27	
DECAY HEAT CLOSED CYCLE COOLING SYSTEM	
LRA-302-631-LR, SH01	Relief valves are shown in structures that contain 10 CFR 54.4(a)(1)components. The discharge path of these relief valves is not indicated. An example of this on the referenced drawing occurs at locations E-3, C-7, D-8, D-9, and B-10. However, similar relief valves appear in numerous system drawings. Identify the relief path from the relief valves for all systems inside structures that contain 10 CFR 54.4(a)(1) components so that spatial interaction can be evaluated.
2.3.3.29	
JACKET COOLING SYSTEM	
LRA-302-283-LR, SH01 & 02	The drawing depicts a pipe line marked 300-1 (shown at D-9 on each drawing) as included in scope of license renewal under 10 CFR 54.4(a)(1). This pipe has an unidentified continuation arrow. Without further information on this interface, it is not possible to evaluate the interaction of the connected piping on the jacket coolant system.

2.3.3.32	
DEMINERALIZED WATER SYSTEM	
LRA-302-182-LR, SH01	At F-8, the drawing identifies connected piping in the liquid waste disposal spent resin transfer system at the decant pump suction as included in scope of license renewal under 10 CFR 54.4(a)(2). The associated drawing, 302-681-LR, SH05 does not identify any piping in scope at the decant pump suction.
	At C-4, the drawing identifies connected piping in the liquid waste disposal reactor coolant subsystem at the deborating demineralizers as included in scope of license renewal under 10 CFR 54.4(a)(2). The associated drawing, 302-681-LR, SH03 identifies this connection as the boundary to an area exclusion where spatial interaction concerns do not exist. Therefore, there is a conflict as to what the applicant is identifying as in scope and what is excluded.
2.3.3.38	
INSTRUMENT AIR SYSTEM	
LRA-302-271-LR, SH01	The drawing depicts the backup air system for automatic dump valves (ADVs) as in scope of license renewal under 10 CFR 54.4(a)(2). Continuation arrows are depicted in the intermediate building to MSV-25 and MSV-26. However the various air piping to the ADVs is not depicted on any instrument air system drawing or on the main steam drawings. Without a more extensive discussion of the instrument air piping to MSV-25 and MSV-26, it is not possible to validate that all components associated with the backup air system have been included in scope and evaluated for inclusion in an aging management program (AMP).
	No connection is shown from the instrument air system to the backup air system. A connection through IAV-546 and IAV-548 was expected.
LRA-302-271-LR, SH04	The drawing depicts an unlabeled drawing continuation mark as in scope of license renewal under 10 CFR 54.4(a)(2) at drawing location E-2. The CR-3 FSAR, Rev 31, drawing shows this connection to the condensate demineralizer system.

	This reference is not included with the license renewal drawings.
	The drawing inconsistently depicts American Society of Mechanical Engineers Section III, Class 2 and Class 4 flags on either side of containment penetrations 111 and 112 at location C-9. The depicted labeling confuses the evaluation of the boundaries for 10 CFR 54.4(a)(1)and (a)(2) piping and piping components.
2.3.3.41	
MISCELLANEOUS DRAINS SYSTEM	
LRA-302-114-LR, SH02	The drawing depicts a pipe continuation to a drain as in scope of license renewal at drawing location H-4. It is not clear if this continuation depicts a pipe run or an opening to another drain sump. No boundary flag is depicted. It is not possible to completely evaluate piping that may be in scope of license renewal for spatial interaction without further discussion.
2.3.3.49	
NUCLEAR SERVICE AND DECAY HEAT SEA WATER SYSTEM	
LRA-302-611-LR, SH01	The line leaving valve RWV-111 shown at location F-6 is shown to be within the scope of license renewal. However, it is not continued on another CR-3 LRA drawing, nor is it terminated at another valve or structure.
	The discharge lines from RWV-61 (at location E-3) and RWV-62 (at location E-4) are shown to be within the scope of license renewal. However, the lines from these two valves are not continued on another CR-3 LRA drawing, nor do they terminate at another valve or structure.
2.3.3.50	
STATION AIR SYSTEM	
LRA-302-271-LR, SH09	The drawing depicts connections to fire service valves (FSV-1145, FSV-1146, and FSV-1147) as in scope for license renewal. No connecting piping is depicted for a continued scoping and spatial interaction evaluation.

2.3.3.52	
STATION DRAINS SYSTEM	
LRA-302-113-LR, SH02	The line coming into isolation valve SDV-133 at location G-7 is shown to be within the scope of license renewal. However, it is not continued on another CR-3 LRA drawing, nor is it terminated at another valve or structure.
LRA-302-163-LR, SH01	Instrument air supply to SDV-90 shown at location A-8 is shown to be within the scope of license renewal. However, the line into this valve is not continued on another CR-3 LRA drawing, nor is it terminated at another valve or structure.
2.3.3.60	
WASTE SAMPLING SYSTEM	
LRA-302-693-LR, SH01	The air supply line to flow control, RM-A6-FC, at location G-5 is shown to be within the scope of license renewal. However, it is not continued on another CR-3 LRA drawing, nor is it terminated at another valve or structure.
2.3.4.1	
CONDENSER AIR REMOVAL SYSTEM	
LRA-302-131-LR, SH01	At location G-3, the applicant shows a line that goes into valve ARV-164. The drawing indicates that this line is within the scope of AMR, but it does not indicate where the line originates from or to what the line connects.
2.3.4.4	
CONDENSATE SYSTEM	
LRA-302-101-LR, SH01	Locations B-4 and B-9 show an exhaust line from the main feedwater pumps turbines (FWTB-1A at location B-4, FWTB-1B at location B-9) to an open area of the drawing. These exhaust lines are also labeled “By Foster Wheeler Corp.” However, it is not clear if the FWTB exhaust to the atmosphere within the turbine building or to some other component or heat sink. Also, these two lines show no visible means of support or anchor.

2.3.4.10	
MAIN FEEDWATER SYSTEM	
LRA-302-081-LR SH02	Four FW system relief valves are shown at locations B-1 (FWV-263), B-2 (FWV-262), D-2 (FWV-16), and D-3 (FWV-17). The relief line from each of these valves is shown to be within scope of the license renewal. However, the lines from these four valves are not continued on another CR-3 LRA drawing, nor do they terminate at another valve or structure.
	Two FW system relief valves are shown at locations D-7 (FWV-4) and D-9 (FWV-3). However, the relief line from each of these valves (FWV-3 & -4) are not shown on the drawing. Also, the lines are not continued on another CR-3 LRA drawing, nor do they terminate at another valve or structure.

Request: Provide sufficient information for the continuation issues identified above to permit the staff to review all portions of the systems within the license renewal boundary as specified in 10 CFR Section 54.21(a)(1).

RAI 2.3-04 **General Items**

Background: 10 CFR Section 54.21(a)(1) requires applicants to identify and list components subject to an AMR. The staff confirms inclusion of all components subject to an AMR by reviewing the components within the license renewal boundary.

Issue: During the scoping and screening review process, several components were found highlighted on CR-3 LRA drawings as being in scope for license renewal, but were not found on the associated tables for mechanical systems in the Scoping and Screening Results-Mechanical Systems section of the CR-3 LRA. Given below is a table that indicates the systems identified with these table inconsistencies.

License Renewal Application (LRA) Section/Drawing Number	Table Location / Issue
2.3.3.22	
CONTROL COMPLEX CHILLED WATER SYSTEM	
LRA-302-756-LR, SH01	The drawing depicts air eliminator and air purger components as included in scope of license

	renewal under 10 CFR 54.4(a)(1) at the inlet of chilled water pumps CHP-1A and CHP-1B (shown at locations D-5 and E-5 on the drawing). Additionally, a di-electric coupling is shown in scope at B-9 on the drawing in the makeup water supply line. The LRA uses the NUREG-1801, "Generic Aging Lessons Learned (GALL) Report," Revision 1 definition for piping, piping components and piping elements. It is not clear that this definition covers these additional elements in this drawing. Air eliminator, air purger, and di-electric coupling components are not included on Table 2.3.3-22 or Table 3.3.2-22 with intended function M-1, pressure boundary.
LRA-302-756-LR, SH01	The drawing depicts the heat exchangers for the post accident sampling system cooler as included in scope of license renewal under 10 CFR 54.4(a)(1). The post accident sampling system cooling coil components are not included on Table 2.3.3-22 or Table 3.3.2-22 with intended function M-1, pressure boundary, and the cooling coils are not included on Table 2.3.3-22 or Table 3.3.2-22 with intended function M-5, heat transfer. The cooling coil components and cooling coils of other air handling heat exchangers cooled by control complex chilled water are included in the AMR under the respective ventilation system. However, an AMR could not be identified for the post accident containment atmospheric sampling system post accident sampling system cooler.
2.3.3.23	
APPENDIX R CHILLED WATER SYSTEM	
LRA-302-756-LR, SH01	The drawing depicts the heat exchangers for the switchgear room air handling units (AHHE-10A and AHHE-10B) as included in scope of license renewal under 10 CFR 54.4(a)(1). These components are actually cooled by the appendix R chilled water system because of the blank flanges installed (F-4/5). The switchgear room cooling coil components are not included on Table 2.3.3-23 or Table 3.3.2-23 with intended function M-1, pressure boundary, and the cooling coils are not included on Table 2.3.3-23 or Table 3.3.2-23 with intended function M-5, heat transfer.

	The cooling coil components and cooling coils of other air handling heat exchangers cooled by appendix R chilled water are included in the AMR under the respective ventilation system. However, no AMR could be identified for the switchgear room heat exchangers under an associated ventilation system.
2.3.3.24	
INDUSTRIAL COOLING SYSTEM	
LRA-302-762-LR, SH01	The drawing depicts the cooling tower heat exchanger, leak rate test air cooler, reactor cavity cooling coils, and industrial cooler electric water heaters (CIHE-2A and CIHE-2B) as included in scope of license renewal under 10 CFR 54.4(a)(2). The cooling coil components are not included on Table 2.3.3-24 or Table 3.3.2-24 with intended function M-1, pressure boundary, and the cooling coils are not included on Table 2.3.3-24 or Table 3.3.2-24 with intended function M-5, heat transfer. No AMR could be identified for these heat exchangers under an associated system.
	The drawing depicts expansion joints, industrial cooler pump casings, and reactor cavity pump casings as included in scope of license renewal under 10 CFR 54.4(a)(2). These components are not included on Table 2.3.3-24 or Table 3.3.2-24 with intended function M-1, pressure boundary. Pump casings and expansion joints are listed separately on other system AMR tables such as the control complex chilled water system.
LRA-302-762-LR, SH03	The drawing highlights a heat exchanger (CIHE-10) in location C-7 of the drawing in scope for license renewal, but it is not included on Table 2.3.3-24 or Table 3.3.2-24 with intended function M05, heat transfer.
2.3.3.25	
CIRCULATING WATER SYSTEM	
LRA-302-201-LR, SH01	The drawing depicts manholes as included in scope of license renewal under 10 CFR 54.4(a)(2) (example shown at B-3 on the drawing). The applicant uses the NUREG-1801, “Generic Aging Lessons Learned (GALL) Report,” Revision 1

	definition for piping, piping components and piping elements. It is not clear that this definition covers manholes. Manhole components are not included on Table 2.3.3-25 or Table 3.3.2-25 with intended function M-1, pressure boundary.
2.3.3.27	
DECAY HEAT CLOSED CYCLE COOLING SYSTEM	
LRA-302-631-LR, SH01 & 02	The drawing depicts the heat exchangers for the decay heat closed cycle cooling pump motor air handling units (AHHE-30A and AHHE-30B) as included in scope of license renewal under 10 CFR 54.4(a)(1). The cooling coil components are not included on Table 2.3.3-27 or Table 3.3.2-27 with intended function M-1, pressure boundary, and the cooling coils are not included on Table 2.3.3-27 or Table 3.3.2-27 with intended function M-5, heat transfer. No AMR could be identified for the decay heat closed cycle cooling pump motor air handling unit heat exchangers under an associated ventilation system.
2.3.3.28	
FUEL OIL SYSTEM	
LRA-302-281-LR, SH01	The drawing depicts the sump pumps (SDP-9A and SDP-9B) and the dirty fuel drain tank as included in scope of license renewal under 10 CFR 54.4(a)(2) and (a)(1), respectively. Other system tanks are specifically identified as part of an AMR. These components are not included on Table 2.3.3-28 or Table 3.3.2-28 with intended function M-1, pressure boundary.
	The drawing depicts the vent cap, screen, and flame arrester for each emergency diesel generator (EDG) fuel storage tank as included in scope of license renewal under 10 CFR 54.4(a)(2). These components are not specifically included on Table 2.3.3-28 nor Table 3.3.2-28, and the components do not meet the CR-3 definition for piping, piping components and piping elements.

2.3.3.29	
JACKET COOLING SYSTEM	
LRA-302-283-LR, SH01 & 02; LRA-302-284-LR, SH01 & 02; LRA-302-777 LR, SH01	The drawing depicts diesel engine-driven pumps as included in scope of license renewal under 10 CFR 54.4(a)(1). These components are not included on Table 2.3.3-29 or Table 3.3.2-29 with intended function M-1, pressure boundary. The "CPM" standby coolant pump casings on EDG 1A and 1B are specifically identified in an AMP. Engine-driven and motor-driven pump casings are also depicted as in scope without a specific AMP on: • CR-3 LRA drawing 302-285-LR, SH01 and SH02, EDG lube oil piping system schematic diagram • CR-3 LRA drawing 302-775-LR, SH01, EFP-3 lube oil piping system schematic diagram
LRA-302-283-LR, SH01& 02	The drawing depicts electric standby heaters as included in scope of license renewal under 10 CFR 54.4(a)(1). These components are included on Table 2.3.3-29 or Table 3.3.2-29 with intended function M-1, pressure boundary. However, there is no consideration of intended function M-5, heat transfer.
LRA-302-284-LR, SH01& 02; LRA-302-285-LR, SH01 & 02	The drawing depicts the heat exchangers for the EDG gearbox oil cooler (DLHE-5 and DLHE-6) as included in scope of license renewal under 10 CFR 54.4(a)(1). The cooling coil components are not included on Table 2.3.3-29 or Table 3.3.2-29 with intended function M-1, pressure boundary, and the cooling coils are not included on Table 2.3.3-29 or Table 3.3.2-29 with intended function M-5, heat transfer. An AMP for the EDG gearbox oil cooler is not included under the lube oil system, either. AMP are specifically identified for the EDG lube oil cooler and the EFP-3 gearbox lube oil cooler.
LRA-302-284-LR, SH01 & 02	The drawing depicts the air filter and turbo-charger for each EDG as included in scope of license renewal under 10 CFR 54.4(a)(1) (shown at location C-2 on each drawing). Neither component is specifically included on Table 2.3.3-29 nor Table

	3.3.2-29 with intended function M-1, pressure boundary. The turbo-charger does not meet the CR-3 definition for piping, piping components and piping elements, and the air filter is not listed with intended function M-2, filtration.
2.3.3.30	
DIESEL GENERATOR LUBE OIL SYSTEM	
LRA-302-285-LR, SH01 & 02; LRA-302-775-LR, SH01	The drawing depicts the EDG gearbox oil sump housing, the EDG and EFP-3 lube oil sump housing, and the EFP-3 speed increaser housing as included in scope of license renewal under 10 CFR 54.4(a)(1). These components are not included on Table 2.3.3-30 or Table 3.3.2-30 with intended function M-1, pressure boundary. Other system reservoirs are specifically identified.
2.3.3.42	
MAKE UP AND PURIFICATION SYSTEM	
LRA-302-661-LR, SH01 & 02	The drawing depicts thermal expansion chamber with rupture seal disc assemblies (MURS-1 at location C-5 on SH01 and MURS-2 at location C-4 on SH02) as in scope of license renewal. These components are not included on Table 2.3.3-42 or Table 3.3.2-42 with intended function M-1, pressure boundary. These components do not appear to meet the CR-3 definition for piping, piping components and piping elements.
LRA-302-661-LR, SH01	The drawing depicts a cabinet shown at location G-2 on the drawing as outside the scope of license renewal. It appears that this component should be included on Table 2.3.3-42 or Table 3.3.2-42 with intended function M-1, pressure boundary.
2.3.3.50	
STATION AIR SYSTEM	
LRA-302-271-LR, SH09	The drawing depicts station air dryers and filter regulators as in scope for license renewal. These components are not included on Table 2.3.3-50 or Table 3.3.2-50 with intended function M-1, pressure boundary. Similar air dryers in the instrument air system are specifically identified as part of an AMP.

2.3.3.51	
SECONDARY SERVICES CLOSED COOLING WATER SYSTEM	
LRA-302-221-LR, SH01	Secondary cycle primary sample cooling water pump, SCP-4, shown at location A-2, is not specifically included in Tables 2.3.3-51 or 3.3.2-51.
	Turbine lubricating oil coolers, TBHE-7A, TBHE-7B, shown at locations C-3 and D-3, respectively, are not specifically included in Tables 2.3.3-51 or 3.3.2-51.
	Feedwater pump turbine lubricating oil coolers, 3A and 3B, shown at locations F-4 and F-6, respectively, are not specifically included in Tables 2.3.3-51 or 3.3.2-51.
	Feedwater booster pump lubricating oil coolers, LOHE-6A and LOHE-6B, shown at locations G-2 and G-1, respectively, are not specifically included in Tables 2.3.3-51 or 3.3.2-51.
	Electro-hydraulic fluid coolers, EHHE-1A and EHHE-1B, shown at locations B-8 and B-9, respectively, are not specifically included in Tables 2.3.3-51 or 3.3.2-51.
	Sample chiller condenser, SSHE-1, shown at location E-3, is not specifically included in Tables 2.3.3-51 or 3.3.2-51.
LRA-302-221-LR, SH02	Generation hydrogen coolers, TBHE-4A through 4D, shown at locations E-4, E-5, E-6, and E-7, respectively, are not specifically included in Tables 2.3.3-51 or 3.3.2-51.
2.3.3.52	
STATION DRAINS SYSTEM	
LRA-302-115-LR, SH01	Filter regulator lubricator SA-144-FR shown at location G-6 is not specifically included in Tables 2.3.3-52 or 3.3.2-52.
LRA-302-115-LR, SH01	The diesel pump room floor shown at location H-4 and the diesel pump room wall shown at location G-4 do not identify which diesel they are associated with.

2.3.3.53	
SPENT FUEL COOLING SYSTEM	
LRA-302-115-LR, SH01	Spent fuel pool coolant filters 3A (SFFL-1A at location D-5) and 3B (SFFL-1B at location D-6) are shown to be included in the scope of license renewal. Filter regulator lubricator SA-144-FR shown at location G-6 is not specifically included in Tables 2.3.3-53 or 3.3.2-53.
2.3.3.54	
NUCLEAR SERVICES CLOSED CYCLE COOLING SYSTEM	
LRA-302-601-LR, SH03	Nuclear service closed cycle chemical feed pump and feed tank, SWT-2, at location D-10 is shown to be included in the scope of license renewal. However, the tank is not specifically included in Tables 2.3.3-54 or 3.3.2-54.
	SW demineralizer, SWDM-1, at location E-5 is shown to be included in the scope of license renewal. However, the demineralizer is not specifically included in Tables 2.3.3-54 or 3.3.2-54.
2.3.4.1	
CONDENSER AIR REMOVAL SYSTEM	
LRA-302-131-LR SH01	Tables 2.3.4-1 and 3.4.2-1 of the CR-3 LRA list the condenser vacuum pump heat exchanger and heat transfer surfaces as being included in the AMR. Specific components ART-2 and ART-3, shown at locations G-5 and G-7, are indicated to be within the scope of an AMR. However, components ART-2 and ART-3 are not listed in CR-3 LRA Tables 2.3.4-1 or 3.4.2-1.
LRA-302-131-LR SH01	At location C-4, component ARWT-1 is indicated as being in scope of an AMR. However, ARWT-1 is not included in CR-3 LRA Tables 2.3.4-1 or 3.4.2-1, nor is the component specifically identified (i.e., type, function, etc.).

2.3.4.2	
AUXILIARY STEAM SYSTEM	
LRA-302-114-LR, SH03	The drawing depicts steam traps as in scope of license renewal in numerous drawing locations. These components are not included on Table 2.3.4-2 or Table 3.4.2-2 with intended function M-1, pressure boundary. The applicant should identify steam traps in all systems and verify that they are included in an AMP.

Request: Confirm that the above passive, long-lived components are subject to an AMR, and indicate in which component group they are included. If they are not subject to an AMR, justify their exclusion.

RAI 2.3-05 General Items

Background: 10 CFR Section 54.21 (a)(1) requires applicants to identify and list components subject to an AMR. The staff confirms inclusion of all components subject to an AMR by reviewing the components within the license renewal boundary.

Issue: During the scoping and screening review process, several structures were found on the CR-3 LRA drawings that were not included within the scope of license renewal. These structures were sumps, waste collectors, canals, pits, etc. In the table below it is indicated which systems are associated with these structures.

License Renewal Application (LRA) Section / Drawing Number	Sump Location / Issue
2.3.3.34	
FLOOR DRAINS SYSTEM	
LRA-302-683-LR, SH01	Two auxiliary building sumps, WDP-4A and WDP-4B, are shown at location H-4 on the drawing.
LRA-302-683-LR, SH02	Eight sumps are shown on the drawing: (a) reactor building sumps WDP-2A and WDP-2B (location F-3), (b) tendon access gallery sumps SDP-3A and SDP-3B (location H-4), (c) nuclear service area sumps SDP-2A and SDP-2B (location F-6), and (d) decay heat pit sumps WDP-3A and WDP-3B (location H-7).

2.3.3.49	
NUCLEAR SERVICE AND DECAY HEAT SEA WATER SYSTEM	
LRA-302-611-LR, SH02	Two nuclear service cooler area sumps are shown on the drawing: 3A SDP-2A at location D-1 and 3B SDP-2B at location E-1.
2.3.3.52	
STATION DRAINS SYSTEM	
LRA-302-115-LR, SH01	A sump associated with the air operated sump pump, SDP-12, is shown at location H-5 on the drawing.
LRA-302-281-LR, SH01	A sump, SDP-9B, associated with the EDG fuel transfer pumps, 3B (AC motor driven) and 3D (DC motor driven) is shown at location F-6 on the drawing.
LRA-302-281-LR, SH01	The drawing indicates at location F-3 an unidentified structure that is assumed to be a sump associated with the EDG fuel transfer pumps 3A (AC motor driven) and 3C (DC motor driven).
2.3.3.53	
SPENT FUEL COOLING SYSTEM	
LRA-302-621-LR, SH01	The drawing shows two structures at location B-1, the incore instrument pit and the fuel transfer canal, that are not included in the scope of license renewal.

Request: Provide justification of the exclusion of the structures identified above from the scope of license renewal and any SSCs inside the sumps or structures.

RAI 2.3-06 **General Items**

Background: 10 CFR Section 54.21 (a)(1) requires applicants to identify and list components subject to an AMR. The staff confirms inclusion of all components subject to an AMR by reviewing the components within the license renewal boundary.

Issue: The applicant used a definition for piping, piping components, and piping elements that are based on Section IX of NUREG-1801, Volume 2. The CR-3 definition of "Piping, piping components, and piping elements" replaces various combinations of the following: piping, fittings, tubing, flow

elements/indicators, filter/demineralizer housings, nozzles, orifices, flex hoses, expansion joints, pump casing and bowl, safe ends, sight glasses, spray head body, strainer housings, thermowells, valve body and bonnet, and closure bolting. However, in the LRA, components such as expansion joints, filters, strainers, and flexible connections are specifically identified in the AMR for one or more mechanical systems, but not the associated tables for other similar mechanical systems.

Also, components that have an intended function in addition to M-1, pressure boundary, such as M-2, filtration, and M-5, heat transfer, are frequently not listed separately with the additional intended function. Rather, these components are frequently only listed under piping components with an M-1 function. Furthermore, some systems list tanks with piping and some systems list tanks separately. The staff is unable to discern a consistent CR-3 methodology for identifying components on the mechanical system AMR tables in the Scoping and Screening Results-Mechanical Systems section of the CR-3 LRA. Consequently, the staff is unable to verify that all components subject to an AMR are adequately represented in the AMR tables. Given below is a table with examples of systems identified with these table inconsistencies.

License Renewal Application (LRA) Section / Drawing Number	Component Listing / Issue
2.3.3.22	
CONTROL COMPLEX CHILLED WATER SYSTEM	
LRA-302-756-LR, SH01	The drawing depicts temporary strainer components as included in scope of license renewal under 10 CFR 54.4(a)(1) at the inlet of chilled water pumps CHP-1A and CHP-1B (shown at locations C-6 and E-6 on the drawing). These components are not included on Table 2.3.3-22 or Table 3.3.2-22 with intended function M-1, pressure boundary, or M-2, filtration. Temporary strainers are also depicted as in scope on: • CR-3 LRA drawing 302-762-LR, SH01, industrial cooler water (shown at locations C-2 and D-2 on the drawing) CR-3 LRA drawing 302-631-LR, SH01 and SH02, decay heat closed cycle cooling (shown at location F-1 on SH01 and location E-2 on SH02)

2.3.3.24	
INDUSTRIAL COOLING SYSTEM	
LRA-302-762-LR, SH01	The drawing depicts expansion joints, industrial cooler pump casings, and reactor cavity pump casings as included in scope of license renewal under 10 CFR 54.4(a)(2). These components are not included on Table 2.3.3-24 or Table 3.3.2-24 with intended function M-1, pressure boundary. Pump casings and expansion joints are listed separately on other system AMP tables such as the control complex chilled water system.
2.3.3.26	
ERP-3 DIESEL AIR STARTING SYSTEM	
LRA-302-778-LR, SH01	The drawing depicts expansion joints as included in scope of license renewal under 10 CFR 54.4(a)(1) on the diesel exhaust line. These components are not included on Table 2.3.3-26 or Table 3.3.2-26 with intended function M-1, pressure boundary. Expansion joints are included as separate component entries in other system tables such as the control complex chilled water system. The applicant should identify expansion joints in all systems and verify that they are included in an AMP.
	The drawing depicts flexible connections as included in scope of license renewal under 10 CFR 54.4(a)(1) on the diesel air start line. These components are not included on Table 2.3.3-26 or Table 3.3.2-26 with intended function M-1, pressure boundary. Flexible connections are included as separate component entries in other system tables such as the reactor building recirculation system. The applicant should identify flexible connections in all systems and verify that they are included in an AMP.

2.3.3.28	
FUEL OIL SYSTEM	
LRA-302-776-LR, SH01	The drawing depicts flexible connections in the drawing as included in scope of license renewal under 10 CFR 54.4(a)(1) on the DDEFW pump diesel fuel storage tank. These components are not included on Table 2.3.3-28 or Table 3.3.2-28 with intended function M-1, pressure boundary.
2.3.3.29	
JACKET COOLING SYSTEM	
LRA-302-283-LR, SH01& 02; LRA-302-284-LR, SH01 & 02; LRA-302-777-LR, SH01	The drawing depicts expansion tanks as included in scope of license renewal under 10 CFR 54.4(a)(1). These components are not included on Table 2.3.3-29 or Table 3.3.2-29 with intended function M-1, pressure boundary. Other systems specifically identify major system tanks as part of an AMP.
2.3.3.32	
DEMINERALIZED WATER SYSTEM	
LRA-302-182-LR, SH02	The drawing depicts the auxiliary building condensate and demineralized water storage tank as included in scope of license renewal under 10 CFR 54.4(a)(2) (shown at B-3 on the drawing). This tank is a significant system component and the tank is not specifically included on Table 2.3.3-32 or Table 3.3.2-32 with intended function M-1, pressure boundary. Other systems, such as the fuel oil system, identify significant system tanks that are subject to an AMP separately.
	The drawing depicts the post treatment filter as included in scope of license renewal under 10 CFR 54.4(a)(2) at the discharge of demineralized water pumps DWP-1A and DWP-1B (shown at D-7 on the drawing). The filter is not included on Table 2.3.3-32 or Table 3.3.2-32 with intended function M-2, filtration.

2.3.3.33	
EMERGENCY DIESEL GENERATOR SYSTEM	
LRA-302-282-LR, SH01	Filters are depicted as included in scope of license renewal under 10 CFR 54.4(a)(1) in numerous system drawings. An example of this on the referenced drawing occurs at locations D-1 and D-8. However, similar filters appear in numerous system drawings, and the filters are not specifically included on Table 2.3.3-33 nor Table 3.3.2-33 with intended function M-1, pressure boundary or M-2, filtration. Filters do not appear to meet the CR-3 definition for piping, piping components and piping elements.
	The drawing depicts flexible connections in the drawing as included in scope of license renewal under 10 CFR 54.4(a)(1) at locations E-1 (near EGV-35) and E-8 (near EGV-39). These components are not included on Table 2.3.3-33 or Table 3.3.2-33 with intended function M-1, pressure boundary.
2.3.3.41	
MISCELLANEOUS DRAINS SYSTEM	
LRA-302-114-LR, SH02	The drawing depicts a flash tank as in scope of license renewal at drawing location H-3. Typically, a pressure and temperature change allows entrained steam in the drains to change state to liquid and cool in the flash tank. Table 2.3.3-41 and Table 3.3.2-41 in the LRA only identify components with an intended function of pressure-boundary (M-1). The flash tank is not identified with an intended function of heat transfer (M-5).
2.3.3.42	
MAKE UP AND PURIFICATION SYSTEM	
LRA-302-661-LR, SH01	The drawing depicts Y-strainers as in scope of license renewal at drawing locations E-3 and E-7. These components are not included on Table 2.3.3-42 or Table 3.3.2-42 with intended function M-2, filtration. Strainers are identified in other systems such as the nuclear services closed cycle

	cooling system. The applicant should identify Y-strainers in all systems and verify that they are included in an AMP.
2.3.3.49	
NUCLEAR SERVICE AND DECAY HEAT SEA WATER SYSTEM	
LRA-302-611-LR, SH01	Expansion joint encapsulation sleeves, RWEJ-1 through RWEJ-10, shown at locations F-2, D-2, F-10, D-9, E-9, D-8, E-8, D-7, E-7 and D-6, respectively, are not specifically included in Tables 2.3.3-49 or 3.3.2-49.

Request: Explain the CR-3 methodology for identifying components on the mechanical system aging management program tables in the scoping and screening results-mechanical systems section of the CR-3 LRA. Justify the exclusion of the listed components with a specific intended function from an AMR. Evaluate all systems for similar excluded components.

RAI 2.3.3.22-01 Control Complex Chilled Water System

Background: 10 CFR Section 54.21(a)(1) requires each applicant to describe and justify the methods used to identify and list those structures and components subject to an AMR.

Issue: The LRA includes the control complex chiller lube oil pumps and oil cooler tubes in an AMR. These components are not shown on CR-3 LRA drawing 302-756-LR, SH01. Without a drawing or a more extensive discussion of the system components, it is not possible to validate that all components associated with the lube oil system have been included in scope and evaluated for inclusion in an AMR.

Request: Provide supplemental information for staff to verify that all control complex chilled water lube oil components are included in scope of license renewal under 10 CFR Section 54.21(a)(1) and evaluated for an AMP.

RAI 2.3.3.27-01 Decay Heat Closed Cycle Cooling System

Background: 10 CFR 54.4(a) requires applicants to identify and list all structures, systems, and components (SSCs) subject to an AMR. The staff confirms inclusion of these SSCs subject to an AMR by reviewing the component types within the license renewal boundary.

Issue: On CR-3 LRA drawing 302-631-LR, SH01, the drawing identifies connected piping to CR-3 LRA drawing 302-181-LR, SH02 as included in

scope of license renewal under 10 CFR 54.4(a)(2) through valve DCV-97 at location A-5, but excludes the connection to valve DCV-212 from being in scope for license renewal. CR-3 LRA drawing 302-631-LR, SH02 also depicts connected piping to CR-3 LRA drawing 302-181-LR, SH02 as included in scope of license renewal under 10 CFR 54.4(a)(2) through valve DCV-98 where the connection to valve DCV-213 is excluded from being in scope for license renewal.

Request: Provide explanation for why both DCV-212 and DCV-213 valves are excluded from being in scope of license renewal under 10 CFR 54.4(a)(2).

RAI 2.3.3.32-01 Demineralized Water System

Background: 10 CFR Section 54.21(a)(1) requires applicants to identify and list components subject to an AMR. The staff confirms inclusion of all components subject to an AMR by reviewing the components within the license renewal boundary.

Issue: On CR-3 LRA drawing 302-182-LR, SH01, the drawing identifies numerous area exclusions where spatial interaction concerns do not exist. In the CR-3 LRA, the applicant states that "…non-safety related piping (including air/gas systems) and ducting components located inside seismic Class I structures have been conservatively included in scope unless specific evaluations were performed to justify exclusion." However, the demineralized water system area exclusions are not described in any detail in the CR-3 LRA. Without a more extensive discussion of these area exclusions, it is not possible to validate that all components associated with the demineralized water system have been included in scope and evaluated for inclusion in an AMP.

Request: Provide justification for excluding the component types from the scope of license renewal to permit the staff to identify all portions of the systems within the license renewal boundary as specified in 10 CFR 54.21(a)(1).

RAI 2.3.3.38-01 Instrument Air System

Background: 10 CFR Section 54.21(a)(1) requires applicants to identify and list components subject to an AMR. The staff confirms inclusion of all components subject to an AMR by reviewing the components within the license renewal boundary.

Issue: On CR-3 LRA drawing 302-271-LR, SH01, the drawing depicts the backup air system for ADVs as in scope of license renewal under 10 CFR 54.4(a)(2) for the instrument air system. However, in LRA section

2.3.4.16, Main Steam System, the applicant identified the following two 10 CFR 54.4(a)(1) functions for the main steam system:

- The system provides relief capacity to protect the steam generators from overpressurization for a loss of electric power.
- The system controls steam generator pressure and thereby provides a mechanism for controlled decay heat removal for a loss of electrical power, steam line failure, loss of coolant accident, feedwater line break, and steam generator tube failure.

The ADV support of the 10 CFR 54.4(a)(1) functions of the main steam system would seem to indicate that the backup air system should be included as in scope of license renewal under 10 CFR 54.4(a)(1). It follows that equipment in the turbine building may be included as in scope of license renewal under 10 CFR 54.4(a)(2), nonsafety related components that could potentially affect the function of 10 CFR 54.4(a)(1) components.

Request: Justify the exclusion of the backup air system as within scope of license renewal under 10 CFR 54.4 (a)(1).

RAI 2.3.3.38-02 Instrument Air System

Background: 10 CFR 54.21(a)(1) requires applicants to identify and list all SSCs subject to an AMR. The staff confirms inclusion of these SSCs subject to an AMR by reviewing the component types within the license renewal boundary.

Issue: In the response letter to NRC request for additional information, dated May 11, 2009, the applicant provided 10 CFR 54.4(a)(1)and (a)(2) functions for LRA systems. In the instrument air system, the applicant identified an 10 CFR 54.4(a)(1) function that indicates the system contains components associated with air reservoirs that provide an assured source of air to various safety related components. However, the main instrument air receivers were identified on the CR-3 LRA drawings 302-271-LR, SH01 and SH02. No individual component air reservoirs were identified on the drawings or included in the AMR tables for the instrument air system.

Request: Provide an explanation on why individual air reservoirs were excluded from being in scope of license renewal under 10 CFR 54.4(a).

RAI 2.3.3.52-01 Station Drains System

Background: 10 CFR 54.4(a) requires applicants to identify and list all SSCs subject to an AMR. The staff confirms inclusion of these SSCs subject to an AMR by reviewing the component types within the license renewal boundary.

Issue: On CR-3 LRA drawing 302-281-LR, SH01, the drawing shows two “2" to Nearest Floor Drain” lines at locations E-3 and E-6. These lines appear to exit the building through a dividing wall and are shown to be within the scope of license renewal. If these lines are fluid-filled and go to the auxiliary building they can affect a safety-related component if they break.

Request: Describe where these lines go, and if any additional components should be included in the scope of license renewal.

RAI 2.3.3.53-01 Spent Fuel Cooling System

Background: 10 CFR 54.21(a)(1) requires applicants to identify and list all SSCs subject to AMR. The staff confirms inclusion of these SSCs subject to an AMR by reviewing the component types within the license renewal boundary.

Issue: On CR-3 LRA drawing 302-621-LR, SH01, the drawing indicates two heat exchangers in the spent fuel storage pools “A” and “B” that are not included in the scope of license renewal. Heat exchanger FHX-2 is shown at location B-6 and heat exchanger FHX-3 is shown at location B-9.

Request: Provide the function of these heat exchangers and justify their exclusion from being in scope of license renewal under 10 CFR 54.4(a).

RAI 2.3.4.3-01 Condensate Chemical Treatment System

Background: 10 CFR 54.21(a)(1) requires applicants to identify and list all SSCs subject to an AMR. The staff confirms inclusion of these SSCs subject to an AMR by reviewing the component types within the license renewal boundary.

Issue: LRA Section 2.3.4.3, states that the condensate chemical treatment system is located within the turbine building, but has components in scope under 10 CFR 54.4 (a)(2), because the system has non-safety related components whose failure could prevent satisfactory accomplishment of the safety related functions. However, LRA Section 2.4.2.18, states that the turbine contains only non safety-related components.

The hydrazine addition tank is part of the chemical treatment system. LRA Figure 2.2-1 indicates that the hydrazine addition tank is within the scope of license renewal; however, ‘tank’ is not included as mechanical component type in the scope of license renewal. Yet, LRA Section 2.4.2.15, Miscellaneous Structures, describes the hydrazine addition tank foundation as being within the scope of license renewal because of a

calculation for non-safety affecting safety identified the tank as required to support a design basis event.

Request: Provide an explanation for why the hydrazine tank foundation was included in the scope of license renewal for possible interaction with safety-related components; indicate which safety-related component interacts with the hydrazine addition tank, and provide justification of the exclusion of the hydrazine addition tank on the foundation from the scope of license renewal.

RAI 2.3.4.3-02 Condensate Chemical Treatment System

Background: 10 CFR 54.21(a) requires applicants to identify and list all SSCs subject to an AMR. The staff confirms inclusion of these SSCs subject to an AMR by reviewing the component types within the license renewal boundary.

Issue: The LRA stated the 10 CFR 54.4(a)(2) function for this system describes pressure boundary seals that support the control complex habitability envelope. The seals are also considered to be civil components. The LRA does not contain any AMR tables listing mechanical components for the chemical treatment system, but does indicate that there are civil and electrical components in this system that are in scope for license renewal. The LRA does not provide details on what type of components (mechanical or electrical) are associated with these pressure boundary seals.

Request: Identify the components transitioning through these seals; and if they are liquid filled, then justify their exclusion from the scope of license renewal under 10 CFR 54.4(a)(2). Also, identify the LRA table depicting the AMR for these pressure boundary seals.

RAI 2.3.4.7-01 Condensate Demineralizer System

Background: 10 CFR 54.21(a)(1) requires applicants to identify and list all SSCs subject to an AMR. The staff confirms inclusion of these SSCs subject to an AMR by reviewing the component types within the license renewal boundary.

Issue: LRA Section 2.3.4.7 refers to an acid/caustic drain line in paragraph 4 that is located in the auxiliary building. The staff could not locate this drain line on the LRA drawings.

Request: Identify this drain line referred to in the text located in the auxiliary building.

RAI 2.3.4.8-01 Emergency Feedwater System

Background: 10 CFR 54.21(a)(1) requires applicants to identify and list all SSCs subject to an AMR. The staff confirms inclusion of these SSCs subject to an AMR by reviewing the component types within the license renewal boundary.

Issue: The main condenser is located within the turbine building and the Emergency Feedwater (EFW) pumps are located within the intermediate building (as noted in FSAR Section 10.5.3). CR-3 LRA Drawing 302-082-LR, SH01 shows a cross-connect between main condenser 3B and the suction for EFW pumps Emergency Feedwater Pump (EFP)-1 and EFP-2. The cross-connect for EFP-1, the motor driven EFW pump, is through a normally-locked-closed motor operated gate valve shown at location F-7 (EFV-2). Similarly, the cross-connect for EFP-2, the turbine driven EFW pump, is also through a normally-locked-closed motor operated gate valve shown at location E-7 (EFV-1).

The condensate-boundary side of both these valves shows a change from ANSI 31.1 ES to ANSI B31.1 Non-Safety Related, and a change from seismic class III to seismic class I. However, where the change between seismic class occurs for these valves (EFV-1, -2) is not indicated on CR-3 LRA drawing 302-082-LR, SH01, nor does it also indicates where the system piping, components, or structures transition from the turbine building to the intermediate building.

Request: Provide supplemental information on CR-3 LRA drawing 302-082-LR, SH01 to identify where the condensate system supply line to the EFW pumps enters the intermediate building and if there are any changes in the piping classification.

RAI 2.3.4.16-01 Main Steam System

Background: 10 CFR 54.21(a)(1) requires applicants to identify and list all SSCs subject to AMR. The staff confirms inclusion of these SSCs subject to an AMR by reviewing the component types within the license renewal boundary.

Issue: On CR-3 LRA drawing 302-011-LR, SH01, there are two unidentified components (RM-G25/G28) shown at locations B-2 and E-2. Both components are attached to an atmospheric line from a normally-closed valve (MSV-25). Both components are shown as being included in the scope of license renewal.

Request: Provide clarification on what the components are and their intended function for being in scope of license renewal under 10 CFR 54.4(a).