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Palisades Nuclear Plant
Operated by Nuclear Management Company, LLC

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Palisades Nuclear Plant
Docket 50-255
License No. DPR-20

NMC Response to NRC Requests for Additional Information Dated September 21, 2005 Relating to License Renewal for the Palisades Nuclear Plant

In a letter dated September 21, 2005, the Nuclear Regulatory Commission (NRC) transmitted Requests for Additional Information (RAIs) regarding the License Renewal Application for the Palisades Nuclear Plant. This letter responds to those requests.

Enclosure 1 provides the NMC response to each NRC RAI.

Please contact Mr. Darrel Turner, License Renewal Project Manager, at 269-764-2412, or Mr. Robert Vincent, License Renewal Licensing Lead, at 269-764-2559, if you require additional information.

Summary of Commitments

This letter contains no new commitments or changes to existing commitments.

I declare under penalty of perjury that the foregoing is true and correct. Executed on October 21, 2005.

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Enclosures (2)

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ENCLOSURE 1

NMC Responses to NRC Requests for Additional Information
Dated September 21, 2005

(51 pages)

ENCLOSURE 1
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RAI 2.2-3

LRA Section 2.1.2.2, "Mechanical Discipline - Specific Scoping Methodology," on Page 2-29, states that electrical components contained in the mechanical systems were usually left in their respective systems since the majority are active and were screened out later. Some electrical components were also kept in their respective mechanical systems where they served a passive pressure boundary function.

The electric heaters and motors are listed in LRA Table 2.3.3-6, and transmitters are listed in LRA Tables 2.3.4-2 & 2.3.4-4, as component types subject to an AMR with pressure boundary as their intended function. Explain how these electrical components serve the intended function of pressure boundary. Identify any other electrical components that are included in the mechanical systems. Also, identify the mechanical systems with which these components are evaluated, and explain how these electrical components serve their intended functions.

NMC Response to NRC RAI 2.2-3

The electrical heaters on LRA Table 2.3.3-6 are the emergency diesel generators (EPS) lube oil (EH-25A/B) and jacket water (EH-27A-D) heaters that penetrate the lube oil and jacket water pressure boundaries, respectively, and require an AMR. The heaters connect to the fluid pressure boundaries with screwed and/or flanged connections (i.e., are not in thermowells).

The motors on LRA Table 2.3.3-6 are the Emergency Diesel Generator (EPS) crankcase exhausters (EMG-0501, 0502, 0503 & 0504). These motors have a pressure boundary intended function and require an AMR.

The transmitter/element on LRA Table 2.3.4-2 are the demineralized makeup water (DMW) restricting orifices. These have a pressure boundary intended function and require an AMR.

The transmitter/element on LRA Table 2.3.4-4 are pressure transmitters. These should not have been listed since they are "Active Components" per NEI 95-10 and not subject to AMR. Accordingly, LRA Tables 2.3.4-4 and 3.4.2-4 are revised to delete the Transmitter/Element line items.

Other electrical component types that were evaluated with the mechanical components include the following: Differential Pressure Indicator, Differential Pressure Switch, Level Indicating Alarm, Level Switch, Level Transmitter, Pressure Indicator, Pressure Transmitter, Pressure Switch, Temperature Element, Temperature Indicator, Temperature Switch. Consistent with NEI 95-10, these component types are active and do not require an AMR.

The Primary Coolant System pressurizer heaters and backup heaters penetrate the pressurizer, provide fluid pressure boundary intended functions and are subject to AMR.

RAI 2.2-6

LRA Section 2.1.3.1, "Active and Passive Determination," second bullet on Page 2-34, states that solenoid valves (SVs) are also typically active components. However, in some cases, the solenoid valve body actually performs a pressure boundary intended function. All SVs were reviewed against this criteria, and those that were needed to maintain a pressure boundary were identified as passive.

LRA Section 2.3 does not identify the solenoid valves that are within the scope of license renewal, but are excluded from being subject to an AMR because they do not serve a pressure boundary intended function. For the staff to determine whether the solenoid valves are properly evaluated in the LRA, list the solenoid valves that are within the scope of license renewal but are excluded from being subject to an AMR in accordance with the requirements of 10 CFR 54.4(a) and 10 CFR 54.21(a)(1), respectively.

NMC Response to NRC RAI 2.2-6

The following SV's are in scope of license renewal only for their seismic mounting and are not subject to AMR as mechanical components: SV-0101, 0148, 0150, 1501, 1502, 1503, 1553, 1553A, 1553B, 1555, 1555A, 1555B, 1683A, 1684A, 1834, 1843, 1893, 1894, 2001, 2002A, 2002B, 2003, 2004, and 2005. The hangers/supports for these components are in scope for license renewal and evaluated separately within a civil/structural commodity.

The following SV's are in scope of License Renewal and not subject to AMR due to being managed by the Palisades Electrical Qualification Program: SV-0338, 0342, 0346, 0347, 0522A, 0738, 0739, 0767, 0768, 0821, 0824, 0825, 0844, 0845, 0846, 0847, 0857, 0861, 0862, 0864, 0865, 0867, 0869, 0870, 0873, 0876, 0877, 0878, 0879, 0880, 0910, 0911, 0913, 0937, 0938, 0939, 0940, 0944A, 0945, 0946, 0947, 0948, 0949, 0950, 0951, 1002, 1007, 1036, 1038, 1044, 1045, 1103, 1104, 1805, 1806, 1807, 1808, 1901, 1902, 1903, 1904, 1905, 2113, 2115, 2117, 2413A, 2413B, 2415A, 2415B, 2418L, 2419L, 2420L, 3001, 3002, 3018, 3027A, 3027B, 3029A,3029B, 3030A, 3030B, 3031A, 3031B, 3036, 3037, 3055A, 3055B, 3056A, 3056B, 3057A, 3057B, 3059, 3069, 3070, 3071, 3084, 3085, 3212A, 3212B, 3213A, 3213B, 3223A, 3223B, 3224A and 3224B.

The following SV's are in scope of License Renewal and not subject to AMR due to being Active: SV-1819, 1820, 1821, 1822. These four SVs are in containment, associated with the containment air cooling system, and provide flow to a radiation monitor (RE-1817) that is in not scope for LR. These SVs are in scope because they are installed on branch lines that are attached to the main air ductwork for the containment air cooler fans. The lines associated with these SVs are 3/4" and non-safety related. Leakage through these lines, in comparison with the flow through the main ductwork, will not keep the containment air coolers from performing their system functions.

RAI 2.3.3.2-2

LRA Section 2.3.3.2 on Page 2-88, identifies the following valves as the boundaries of the portions of the circulating water system within the scope of license renewal: (1) Valves MOV-5315 and MO-5316, which lead from dilution pumps P-40 A/B to cooling towers E-30 A/B Makeup/Fill located outside of the intake structure pump house, and (2) Valves MOV-5326A (Basin 'A' Cooling Tower Blowdown Line Isolation) and MOV-5326B (Basin 'B' Cooling Tower Blowdown Line Isolation).

However, Valves MOV-5315, MOV-5316, MOV-5326A and MOV-5326B are not shown within the scope of license renewal on license renewal Drawing LR-653, Sheet 1, at Locations D-2, F-2, D-1 and G-1 respectively. Clarify if these valves are within the scope of license renewal. If not, justify the exclusion of the above-mentioned valves from the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a).

NMC Response to NRC RAI 2.3.3.2-2

The words "portion of the piping" in the referenced descriptions, and the highlighting on the drawing, were intended to indicate that only the indoor portions of the listed lines, and not the outdoor piping and valves, are in scope. The Circulating Water System piping in the screen house and turbine building is in scope for an (a)(2) spray concern only. The subject valves and some of the piping are outdoors (Screen House Roof or nearby ground level) and not required for isolation for license renewal, so they are not in scope.

For additional clarification, LRA Section 2.3.3.2 on page 2-88, third paragraph, items 2) and 3) are hereby revised to read as follows, "2) the indoor portions of the piping from ... house), and 3) the indoor portions of the piping from ... house).

RAI 2.3.3.2-3

License renewal Drawing, LR-653, Sheet 1, shows metering orifices (FE-5327A/B) at Locations C-1 and G-1, outside the scope of license renewal. It appears that these metering orifices are located in an area where their failure could cause failure of safety-related components. Therefore, they should be within the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a)(2). Also, metering orifices are listed in Table 2.3.3-2 as components groups subject to an AMR. These components serve a fluid pressure boundary intended function and are passive and long-lived. Justify the exclusion of metering orifices from the scope of license renewal and from being subject to an AMR in accordance with the requirements of 10 CFR 54.4(a) and 10 CFR 54.21(a)(1), respectively.

NMC Response to NRC RAI 2.3.3.2-3

FE-5327A/B are not located in the Screen House or Turbine Building, or near safety-related components, and are not in scope of license renewal. They are located outside after the circulating water piping exits the Screen House. For the FE's that are in scope for this system, they are included in component type "Pipe & Fittings" which is included in Table 3.3.2-2.

RAI 2.3.3.3-1

License renewal Drawing LR-223, Sheet 1B, shows component cooling water going to the component cooling water radiation monitor, RE-0915, to be monitored for activity, at Location D-4. The radiation monitor and the component cooling lines entering and exiting it are shown within the scope of license renewal. However, LRA Tables 2.3.3-3 and 3.3.2-3, do not list radiation monitor as a component group subject to an AMR. Clarify whether radiation monitors are included in a component group already listed in LRA Table 2.3.3-3. If not, justify the exclusion of radiation monitors from being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

In addition, it appears that there is an inconsistency between different systems related to the scoping of the radiation monitoring instrument. The radiation monitor associated with the component cooling water system is included in this system. However, radiation monitors associated with the radwaste system and steam generator blowdown systems are included in the radiation monitoring system. Explain the basis for this inconsistency.

NMC Response to NRC RAI 2.3.3.3-1

RE-0915 is "Active" per NEI 95-10, Appendix B analysis, and not subject to AMR.

It is correct that the RE's could have been included consistently in either their parent system or in a consolidated radiation monitor system. However, at Palisades, radiation elements are active components (not subject to AMR) regardless of which system they are assigned to, so system assignments were based on convenience. No change is needed to the Palisades LRA.

RAI 2.3.3.4-1

FSAR Section 9.5.1.5.c for the compressed air system states that "The safety positions and position on a loss of air supply for significant safety-related or important to safety air-operated valves are listed in FSAR Table 9-9. No failure of valves due to degraded instrument air precludes maintaining the plant in a safe condition provided the backup systems are available." FSAR Table 9-9 for valve CV-2191 indicates that the safety position of this valve is open and the position after loss of air is closed with a note also stating that an accumulator is installed to open the valve upon loss of normal air supply.

However, the air supply line and components between valve CV-2191 and the air reservoir are shown outside the scope of license renewal on license renewal Drawing LR-202, Sheet 1, at Location H-5. Failure of the air supply line, its associated in-line components, and the air reservoir will cause the valve to close when the safety position of the valve is open. Therefore the air supply line and components between valve CV-2191 and the air reservoir should be within the scope of license renewal.

Provide the basis for excluding the above-mentioned components from the scope of license renewal and being subject to an AMR in accordance with the requirements of 10 CFR 54.4(a) and 10 CFR 54.21(a)(1), respectively.

NMC Response to NRC RAI 2.3.3.4-1

SV-2191, MV-CA2191, PCV-2191, CK-CA498, and the associated tubing and air reservoir are hereby included in scope of license renewal. Aging management of these components will be consistent with aging management of the other similar air system components as reported in the LRA.

RAI 2.3.3.4-2

Compressed air license renewal drawings show portions of the air line connecting to the control valve/damper operators as within the scope of license renewal. However, the following portions of the control valve/damper operators are shown outside the scope of license renewal. Explain how the valves/dampers perform their functions with a failure (loss of air) in the portions that are excluded from the scope of license renewal:

(a) The air supply line and solenoid valve to valve CV-2165 on LR-202, Sheet 1A (Location F-5).
(b) The air supply line beyond the solenoid valve to CV-0522A which is shown with red tick marks on LR-205, Sheet 2 (Location G-3).
(c) The air supply line connecting to valve CV-0736 up to POC-0736 on LR-207, Sheet 2 (Location C-4).
(d) The air supply line connecting to valve CV-1061 up to POC-1061 on LR-210, Sheet 2 (Location G-3).
(e) F-354 and the air supply line beyond SV-1768, F-353 and F-355 and the connecting air supply lines on LR-218, Sheet 6. Also, F-352 and F-351 and the connecting air supply lines on LR-218, Sheet 6A.
(f) The air supply lines and associated components on both sides of valves CV-0735, CV-1221 and CV-0734 on LR-212, Sheet 2 (Locations F-8, G-8 and H-6), and valves MV-PC-161, MV-PC-162 and MV-PC-163 on LR-219, Sheet 1B (Locations D-5, D-6).

NMC Response to NRC RAI 2.3.3.4-2

Responses to each of the listed items are as follows:

(a) SV-2165 and associated tubing are hereby included in scope of license renewal under criterion (a)(3) (Appendix R).
(b) These components are retired in place and are isolated by locked valves and a blind flange. .
(c) This air supply tubing is hereby in scope of license renewal.
(d) CV-1061 is in scope for non-safety related SSC attached to safety related SCC. POC-1061 is in scope because it is seismically mounted. The air supply tubing does not have operational safety significance and does not meet license renewal scoping criteria.
(e) The solenoid valves associated with F-351, F-352, F-353, F-354, and F-355 fail to their safe positions. The supply filters have no affect on the solenoid valves. These items do not meet license renewal scoping criteria. During this review it was noticed that F-356, on LR-M-218 Sheet 6 (E-2), was erroneously highlighted. Filter F-356 does not meet license renewal scoping criteria and the highlighting on the drawing should be disregarded.
(f) CV-0734 and CV-0735 are normally closed, their safety position is closed, and they fail as-is (i.e., closed) on loss of supply air. CV-1221 is normally open and fails open on loss of air supply. These items do not meet license renewal

scoping criteria. MV-PC161, 162, and 163 were shown as in scope solely for administrative reasons because they have no Q-list interpretation and are, therefore, treated as safety-related. The associated air lines and control valves do not have operational safety significance and do not meet license renewal scoping criteria.

RAI 2.3.3.4-4

License renewal Drawing LR-212, Sheet 3 (Locations D-7, F-5), shows air lines within the scope of license renewal. However, the continuing portions of these lines are shown outside the scope of license renewal. Explain how the portions that are within the scope of license renewal will be isolated from the portions that are not within the scope of license renewal without a valve or other component to isolate them.

NMC Response to NRC RAI 2.3.3.4-4

Note 1 on LR-M-212, Sheet 3 states: "Each individual component is served by a local isolation valve". These valves are not shown on LR-M-212, Sheet 3 but are available to isolate components if necessary.

RAI 2.3.3.4-6

License renewal Drawing, LR-225, Sheet 1, shows a silencer (S-966) at Location A-6, within the scope of license renewal. However, silencers are not listed in LRA Table 2.3.3-4 as component groups subject to an AMR. Silencers serve a fluid pressure boundary intended function and are passive and long-lived. The silencer does not perform a mechanical function. It appears that this component is within the scope of license renewal for structural considerations. Clarify if silencers are already included in LRA Table 2.3.3-4 as part of any other component group. If not, justify the exclusion of silencers from being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

NMC Response to NRC RAI 2.3.3.4-6

S-966 is located on air dryer M-9B's filter drain line. Failure of the silencer will not prevent the air dryer from performing its intended function. However, the silencer is seismically supported. Therefore, the hangers/supports for the silencer are in-scope for license renewal and are evaluated with the appropriate structural commodity.

RAI 2.3.3.4-7

License renewal Drawing LR-212, Sheet 1A, shows piping and instrumentation diagrams for air compressors C-2A and C-2C.

(a) First and second stages of air compressor C-2A and C-2C are shown as outside the scope of license renewal. Also, a note on the drawing states, "Per NEI 95-10, air compressors are excluded from the scope of license renewal. Therefore all components located inside C-2A and C-2C are excluded from license renewal scope." However, compressors are listed in LRA Table 2.3.3-4 as subject to an AMR. Explain the contradiction between the LRA table and the license renewal drawing.

(b) Fans for the air compressors C-2A and C-2C are shown as within the scope of license renewal and listed in LRA Table 2.3.3-4 with the fluid pressure boundary intended function. Explain how these air compressor fans serve a fluid pressure boundary.

(c) The positive displacement pumps for air compressors C-2A and C-2C are shown as within the scope of license renewal. The component type pumps is listed in LRA Table 2.3.3-4 as subject to an AMR with a fluid pressure boundary intended function. Explain how the pumps with an internal fluid of oil are within the scope of license renewal and the oil sump and oil manifold which also maintain fluid pressure boundary and are passive, are excluded from the scope of license renewal in accordance with 10 CFR 54.4(a).

(d) The oil cooler and aftercooler tube and shell sides for air compressors C-2A and C-2C are shown as within the scope of license renewal. The tube side of each intercooler for air compressors C-2A and C-2A is shown as within the scope of license renewal. However, the shell side of the intercoolers are shown outside the scope of license renewal. Explain why the shell side of the compressor intercoolers is excluded from the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a).

NMC Response to NRC RAI 2.3.3.4-7

Responses to each of the listed items are as follows:

(a) The first and second stages of air compressors, including the load/unload valves, are hereby in scope and highlighted to indicate that they are in the scope of license renewal. The note on LR-M-212, Sheet 1A is hereby deleted. However, in accordance with NEI 95-10, compressors are active and do not require aging management review; therefore, the line item "Blowers, Fans, Compressors, Vacuum" is hereby removed from Table 2.3.3-4 on page 2-100 and Table 3.3.2-4 on page 3-130.

(b) The fans should not be highlighted on LR-M-212, Sheet 1A; the highlighting of the fans should be disregarded. The Component Group "Blowers Fans Compressors Vacuum" in Table 2.3.3-4 only includes compressors. In accordance with NEI 95-10, compressors are active and do not require aging

management review; this component group is hereby removed from LRA Tables 2.3.3-4 and 3.3.2-4.

(c) The oil sump and oil manifold are in scope and should be highlighted on the drawing. However, they are parts of the compressor which is active per NEI 95-10 , and do not require aging management review.

(d) The skid mounted coolers shown on the drawing are air cooled and have fins rather than shells. The tubing is in scope for its pressure boundary function but the external fins represented by the surrounding boxes have no license renewal intended function. Therefore, the highlighting on the rectangular boxes around the oil coolers and aftercoolers should be disregarded.

RAI 2.3.3.4-8

LRA Table 2.3.3-4 of the compressed air system lists blowers as a component group subject to an AMR with the intended function of fluid pressure boundary in accordance with 10 CFR 54.21(a)(1). However, the staff could not identify any blowers within the scope of license renewal on the license renewal drawings for the compressed air system. Provide drawings or other documents that present the location of the compressed air system blowers that are within the scope of license renewal in accordance with 10 CFR 54.4(a).

NMC Response to NRC RAI 2.3.3.4-8

The components in the group "Blowers, Fans, Compressors, Vacuum" that are in scope for LR for CAS are the compressors C-2A, B and C and C-6A and B. These compressors are active per NEI 95-10 and an AMR is not required. As noted in response to RAI-2.3.3.4-7, the group "Blowers, Fans, Compressors, Vacuum" is being removed from Tables 2.3.3-4 and 3.3.2-4.

RAI 2.3.3.10-1

The following components are shown on the license renewal drawings for the miscellaneous gas system within the scope of license renewal. However, LRA Table 2.3.3-10 of the miscellaneous gas system does not list these component groups subject to an AMR. These components serve a pressure boundary intended function and are passive and long-lived. These components are contained in the hydrogen monitoring system. LRA Section 2.3.3.10 states that the hydrogen monitoring system is a portion of the miscellaneous gas system within the scope of license renewal. LRA Section 2.3.3.10 also states in the "System Function Listing" that "HYM-01" is an intended function of the hydrogen monitoring system which provides continuous hydrogen monitoring of the containment atmosphere during post-accident conditions.

Clarify if these components are already included in LRA Table 2.3.3-10 as part of any other component group. 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) Containment sampling pumps on LR-224, Sheet 2, at Locations C-6 and G-5
(b) Moisture separators on LR-224, Sheet 2, at Locations C-5, F-5

NMC Response to NRC RAI 2.3.3.10-1

Responses to each of the listed items are as follows:

(a) LRA Table 2.3.3-10 is hereby revised to include the new line item "Pumps" with an Intended Function of Fluid Pressure Boundary. Table 3.3.2-10 is also revised to include the companion line item of Component Type "Pumps," with Intended Function, Material, Environment, Aging Effect Requiring Management, and Aging Management Program entries of Fluid Pressure Boundary, Stainless Steel, Air (Int) and Plant Indoor air (Ext), None, and None Required, respectively.

(b) The moisture separators are associated with the hydrogen monitors. LRA Table 2.3.3-10 is hereby revised to include a new line item "Monitor," with an Intended Function of Fluid Pressure Boundary. Table 3.3.2-10 is also revised to include the new companion line item of Component Type "Monitor," with Intended Function, Material, Environment, Aging Effect Requiring Management, and Aging Management Program entries of Fluid Pressure Boundary, Stainless Steel, Air (Int) and Plant Indoor air (Ext), None, and None Required, respectively.

RAI 2.3.3.10-2

License renewal Drawing LR-222, Sheet 1 (Location B-1), shows the nitrogen supply lines to the spent fuel pool gate within the scope of license renewal. However, the symbol for the spent fuel pool gate and the inner and outer seals are shown as outside the scope of license renewal. Explain why the spent fuel pool gate seals are outside the scope of license renewal while the nitrogen gas, which is required to inflate the seals to perform its intended function, is within the scope of license renewal.

NMC Response to NRC RAI 2.3.3.10-2

LR-M-222, Sheet 1 depicts mechanical components in the scope of license renewal. The spent fuel pool gate and seals are addressed as civil/structural components.

The spent fuel pool gate seals perform no license renewal intended function. Therefore, the nitrogen gas supply (stainless steel tubing and related components from the HBD/SS Tubing reducer (located at C-3) to the gate seals) is not in the scope of license renewal. The highlighting on these components should be disregarded.

RAI 2.3.3.10-3

On license renewal Drawing LR-222, Sheets 2 and 3, almost all of the drawing is shown as within the scope of license renewal except the nitrogen bottles and air containers. These nitrogen bottles and air bottles are required to supply nitrogen and air backup to the safety-related systems. Explain why the nitrogen and air supply bottles are not within the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a). Similarly, hydrogen bottles on license renewal Drawing LR-222, Sheet 1A (Location E-8), and their associated piping and components to line HB-21-1" are shown as outside the scope of license renewal. Line HB-21-1" from upstream of valve 1"-130-WE-88 to the continuation flag to the volume control tank is shown as within the scope of license renewal for the chemical and volume control system. It appears that these hydrogen bottles supply backup hydrogen to the volume control tank T-54, shown on license renewal Drawing LR-202, Sheet 1A, at Location F-7. Justify the exclusion of the above nitrogen bottles from the scope of license renewal and from being subject to an AMR in accordance with the requirements of 10 CFR 54.4(a) and 10 CFR 54.21(a)(1), respectively.

NMC Response to NRC RAI 2.3.3.10-3

The nitrogen bottles and air containers on LR-M-222, Sheet 2, are within the scope of license renewal, and are consumables in accordance with NEI 95-10. The nitrogen bottles for the electrical penetrations on LR-M-222, Sheet 3, are not required to support any intended function of the penetrations or any license renewal scoping criteria, and are not in scope.

The Room 139 hydrogen bottles on LR-M-222, Sheet 1A, provide a non-safety related backup supply, and do not meet any of the license renewal scoping criteria. Line HB-21-1" from upstream of valve 1"-130-WE-88 to the continuation flag to the volume control tank is in scope of license renewal in accordance with 10 CFR 54.4(a)(2), non-safety related SSC connected to safety related SSC. Equivalent anchors are located where the highlighting ends on the drawing.

RAI 2.3.3.10-5

License renewal Drawing, LR-224, Sheet 1 (Location C-7), shows Pump P-2402 as within the scope of license renewal for the miscellaneous gas system. However, the license renewal drawing indicates that the pump is part of a portion of the system which is no longer in service. Identify the license renewal criterion that this pump supports, while it is no longer in service. Also, explain why the pipes leading to this pump are not within the scope of license renewal. In addition, pumps are not listed in LRA Table 2.3.3-10 as a component group subject to an AMR. Justify the exclusion of Pump P-2402 from being subject to an AMR in accordance with the requirements of 10 CFR 54.121(a)(1).

NMC Response to NRC RAI 2.3.3.10-5

P-2402 shown on M-224, Sheet 1, is retired in-place and is in the process of being removed from LR-M-224-1 because the number duplicates a pump number on another drawing. The pump P-2402 shown on M-224, Sheet 2, (D-6) is in scope for license renewal.

The NMC response to NRC RAI-2.3.3.10-1 above added line items for "Pumps" to LRA Tables 2.3.3-10 and 3.3.2-10.

RAI 2.3.3.10-6

License renewal Drawing LR-224, Sheet 2 (Locations B-6 and D-6), shows the lines beyond two closed valves continuing on to license renewal Drawing LR-219, Sheet 2 as within the scope of license renewal. On license renewal Drawing LR-219, Sheet 2, the continuation of the lines from Drawing LR-224, Sheet 2, are also shown within the scope of license renewal. However, before entering the post accident sampling monitoring panel C103-1, these lines are shown outside the scope of license renewal. Explain why these lines are not within the scope of license renewal prior to entering the post accident sampling monitoring panel C103-1.

NMC Response to NRC RAI 2.3.3.10-6

The lines are in the scope of license renewal in accordance with 10 CFR 54.4 (a)(2) as non-safety related SSC attached to safety related SSC. Where the highlighting stops represents the location of an equivalent anchor.

RAI 2.3.3.10-7

LRA Table 2.3.3-10 lists accumulators and tanks as component groups subject to an AMR with a fluid pressure boundary intended function. Clarify whether nitrogen bottles on license renewal drawing LR-222, Sheet 1 (Locations B-2, E-7, and E-8), or reagent gas and calibration gas bottles on LR-224, Sheet 2, are included in the accumulators/tanks component groups. If these bottles are excluded from being subject to an AMR because they are considered as consumable components, then provide the frequency or condition of their replacement. Also, identify waste gas system accumulators/tanks that are within the scope of license renewal and are subject to an AMR in accordance with the requirements of 10 CFR 54.4(a) and 10 CFR 54.21(a)(1), respectively.

NMC Response to NRC RAI 2.3.3.10-7

LRA Table 2.3.3-10 Component Group "Accumulators" consists of the nitrogen bottles shown on LR-M-222-1 (except the nitrogen bottle located at B-2 as discussed in response to RAI 2.3.3.10-2 above) and LR-M-222-2 (nitrogen bottles added per RAI 2.3.3.10-3 above), and the calibration and reagent hydrogen gas bottles on LR-M-224-2.

Compressed air/gas bottles at Palisades are in scope of license renewal and considered consumables due to being replaced at the end of their service life (empty), and are not subject to an AMR in accordance with NEI 95-10. Therefore, the line items for component type "Accumulators" in LRA Table 2.3.3-10 on page 2-136 and 3.3.2-10 on page 3-171 are hereby deleted.

The Component Group "Tank" in LRA Table 2.3.3-10 is the Bulk Nitrogen Tank (located outdoors and not shown on drawing). The Bulk Nitrogen Tank is in scope of license renewal and subject to AMR. Refer to LRA Section 2.3.3.15 for the discussion of the Waste Gas System.

RAI 2.3.3.11-1

License renewal Drawing LR-650, Sheet 1A, shows an instrument diaphragm at Location F-7, within the scope of license renewal. However, LRA Table 2.3.3-11 does not list instrument diaphragm as a component group subject to an AMR. This instrument diaphragm serves a pressure boundary intended function and is passive and long-lived. Clarify if this component is already included in LRA Table 2.3.3-11 as part of any other component group. If so, identify its intended function. If not, justify the exclusion of this instrument diaphragm from being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

NMC Response to NRC RAI 2.3.3.11-1

The instrument diaphragm on M-650-1A (F7) is not listed in the Radwaste System LRA Table 2.3.3-11. The referenced instrument diaphragm is addressed in Chemical and Volume Control System LRA Tables 2.3.3-1 on page 2-87 and 3.3.2-1 on page 3-121 under Component Group "Check, Control, Manual & Relief Valves; Instrument Assemblies."

RAI 2.3.3.11-4

License renewal Drawing LR-654 shows a section of piping HCD-1-1/2" going to the controlled chemical lab drain tank T-76, at Location B-6, within the scope of license renewal. However, the continuation of this piping to license renewal Drawing LR-210, Sheet 1, at Location H-8, is not shown within the scope of license renewal. Resolve this inconsistency between the above-mentioned drawings and provide the basis for the resolution.

NMC Response to NRC RAI 2.3.3.11-4

This line is in scope of License Renewal per 10CFR54.4(a)(2) due to being in proximity of SR equipment (spray). The Controlled Chemistry Laboratory Drain Tank is located in the Laundry Drain Tank Room. Once the line penetrates the Laundry Drain Tank Room wall, there is no safety related equipment in the area of the piping. Therefore, this section of piping on LR-M-210 located in the Laundry Drain Tank Room is not in scope of License Renewal.

RAI 2.3.3.11-5

License renewal Drawing LR-210, Sheet 1, shows a section of piping HC-1-1" coming from the controlled chemical lab drain tank T-76, at Location F-8, continuing to the dirty waste drain header outside the scope of license renewal. However, the continuation of this piping on license renewal Drawing LR-211, Sheet 1, at Location E-6, is shown within the scope of license renewal. Resolve this inconsistency between the above-mentioned drawings and provide the basis for the resolution.

NMC Response to NRC RAI 2.3.3.11-5

While the Controlled Chemistry Laboratory Drain Tank drain piping is located in the Laundry Drain tank Room, it is not in scope of License Renewal because no safety related equipment is located in the room. Once the pipe exits the room, as shown on the continuation drawing, it is in scope of License Renewal per 10CFR54.4(a)(2) due to being in proximity to safety related equipment (spray).

RAI 2.3.3.11-7

License renewal Drawing LR-210, Sheet 1B, shows the clean resin transfer tank (T-61) at Location D-1 as within the scope of license renewal in accordance with 10 CFR 54.4(a). However, the lines from the clean resin transfer tank to the purification and deborating ion exchangers and to the spent fuel demineralizer, at Location B-1, are excluded from the scope of license renewal. Justify the exclusion of the above mentioned lines (including flow gauge FG-1054) from the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a).

NMC Response to NRC RAI 2.3.3.11-7

The Clean Resin Transfer Tank (T-61) is in scope of License Renewal due to 10CFR54.4(a)(2) (seismic II attached to I), and is an anchor point for the line coming from Primary Make-up water (Line HC-9-2), including lines HC-32-1. T-61 is not in scope of License Renewal due to 10CFR54.4(a)(2) for spatial orientation (spray) due to being located in its own room with no safety related components being in the area. Therefore, all lines connecting to T-61, such as those discussed above, are not necessarily in scope.

RAI 2.3.3.11-8

License renewal Drawing, LR-650, Sheet 1B, shows clean waste transfer pumps P-94 and P-97B, at Location C/D-6, within the scope of license renewal. However, the lines from these clean waste transfer pumps to the continuation license renewal Drawing LR-650, Sheet 1, are shown outside the scope of license renewal. Justify the exclusion of the above mentioned lines, including the restricting orifices R0-5026 and RO-5027, from the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a).

NMC Response to NRC RAI 2.3.3.11-8

P-94 and P-97B are in scope of License Renewal due to 10CFR54.4(a)(2) (seismic II attached to I), and is an anchor point for the line coming from the Treated Waste Monitor Tanks (line HCC-49-3) on drawing LR-M-650-1B (G2). The lines going to LR-M-650-1 are truncated based on a moment of inertia truncation criteria.

RAI 2.3.3.11-9

LRA Section 2.3.3.11, on Page 2-137, states that some SSCs are considered within the scope of license renewal due to environmental qualification in accordance with 10 CFR 54.4(a)(3). LRA Section 2.3.3.11 for the radwaste system states in the "System Function Listing," on Page 2-139 that the radwaste system contains components that are required by the current design basis for environmental qualification in accordance with 10 CFR 50.49. However, based on the information provided in the FSAR and in the LRA, the staff is not able to determine which mechanical components are within the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a)(3).

Provide information (e.g., EQ database or reports) so that the staff can identify the mechanical components of the radwaste system that are within the scope of license renewal in accordance with the requirements of the environmental qualification regulating event of 10 CFR 54.4(a)(3).

NMC Response to NRC RAI 2.3.3.11-9

The Radwaste System at Palisades does not have mechanical components included in the EQ Program. However the Radwaste System does have electrical/I&C components in the EQ Program as follows: POS-1002, 1007, 1036, 1038, 1044, 1045, 1103, 1104 are EQ position switches evaluated in the radwaste system. These switches are active and not subject to AMR. SV-1002, 1007, 1036, 1038, 1044, 1045, 1103, 1104 are EQ air solenoid valves associated with radwaste control valves. These are evaluated in the Compressed Air System (CAS) and age managed by the EQ Program.

RAI 2.3.3.13-2

LRA Section 2.3.3.13, on Page 2-148, states that some SSCs are considered within the scope of license renewal due to environmental qualification in accordance with 10 CFR 54.4(a)(3). LRA Section 2.3.3.13, for the shield cooling system in the "System Function Listing," on Page 2-149, states that the shield cooling system contains equipment in compliance with the environmental qualification requirements of 10 CFR 50.49. However, based on the information provided in the FSAR and in the LRA, the staff is not able to determine which mechanical components are within the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a)(3) due to environmental qualification regulated event.

Provide information (e.g., EQ database or reports) so that the staff can identify the mechanical components of the shield cooling system that are within the scope of license renewal in accordance with the requirements of the environmental qualification regulating event of 10 CFR 54.4(a)(3).

NMC Response to NRC RAI 2.3.3.13-2

The Shield Cooling System at Palisades does not have mechanical components included in the EQ Program. However the Shield Cooling System does have electrical/I&C components in the EQ Program as follows: POS-0939, is an EQ position switch in this system. The switch is active and not subject to AMR. SV-0939 is a EQ air solenoid valve associated with a Shield Cooling System control valve. This SV is evaluated in the Compressed Air System (CAS) and is age managed by the EQ Program.

RAI 2.3.3.13-3

License renewal Drawing LR-221, Sheet 1, shows the shield cooling surge tank within the scope of license renewal. It appears that the tank is within the scope of license renewal in accordance with 10 CFR 54.4(a)(2) to protect safety-related components from spray, flooding and seismic II/I considerations. However, it cannot be determined from the information provided in the LRA and the FSAR why the Y-strainers and the motor control switches are included within the scope of license renewal, whereas the piping between the heat exchanger (E-64), including the shield cooling pumps P-77A and P-77B and the shield cooling surge tank is not within the scope of license renewal. Justify the exclusion of the above mentioned piping from the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a).

NMC Response to NRC RAI 2.3.3.13-3

The surge tank, T-62, is in scope of License Renewal per 10CFR54.4(a)(2) because it serves as the anchor point for the attached Containment penetration piping (seismic II attached to I). The other piping and components associated with the surge tank do not meet license renewal scoping criteria.

The control switches are in scope of LR because they are Q-listed for seismic reasons as they are mounted on a safety related panel. The control switches were not subject to AMR due to being active. The hangers/supports for these components are in-scope for license renewal and are evaluated in the appropriate structural commodity.

The two Y-strainers are only in scope of LR and subject to AMR because the Q-list identified them as safety related for seismic support. The strainers did not have an operational function such as filtration. The hangers/supports for these components are in-scope for license renewal and are evaluated in the appropriate structural commodity.

RAI 2.3.3.14-1

LRA Section 2.3.3.14 states in the "System Function Listing," that "SFP-01" is an intended function meeting Criterion 1 for inclusion of the spent fuel pool cooling system within the scope of license renewal. The spent fuel cooling system removes decay heat from the fuel stored in the spent fuel pool and cool reactor cavity water during spent fuel transfer. Further, SFP-01 states that cooling the reactor cavity water is not an intended function for the spent fuel pool cooling system that meets the requirements of 10 CFR 54.4. Consequently, the piping shown on license renewal Drawing LR-221-2, Sheet 2, for the spent fuel pool cooling system shows piping that supports the cooling of the reactor cavity outside the scope of license renewal and not being subject to an AMR. The piping starts at Location D-1 on license renewal Drawing LR-221, Sheet 2.

Based on the information provided in the LRA and in the license renewal drawings provided for the spent fuel pool cooling system, it appears that although cooling of the reactor cavity water has been correctly identified as not supporting an intended function, failure of the piping supporting this function may affect the intended function of removing decay heat from the fuel stored in the spent fuel pool.

In order for the staff to complete its review, provide information justifying the exclusion of the above-mentioned portions of the spent fuel pool cooling system piping from the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a).

NMC Response to NRC RAI 2.3.3.14-1

The two lines that go to the top of the reactor cavity were used to clean up the reactor cavity for water purity. The plant now uses filters that float on the top of the reactor cavity pool so these lines are not used. During refueling, with the reactor vessel head removed, heat removal for the reactor cavity is provided by the shutdown cooling system. Therefore these pipes are not required to be in scope for license renewal as they do not support any system intended function.

Also, the normal position of the containment isolation valves (MV-SFP117, 118, 120 & 121) is locked closed providing isolation of the reactor cavity from the SFP system. Therefore, any failure of the portion of the lines not in scope would not affect the intended function of removing decay heat from the fuel stored in the spent fuel pool.

RAI 2.3.3.14-2

LRA Table 2.3.3-14 identifies "Component Groups" and their intended functions. Within the table, is the component group, "Filters/Strainers" with the intended function of fluid pressure boundary. This LRA section also states in the "System Function Listing," that "SFP-01" is an intended function meeting criteria Criterion 1 for inclusion of the system within the scope of license renewal. The system intended function is to remove decay heat from fuel stored in the spent fuel pool.

License renewal Drawing LR-221-2 shows basket strainers, BS-2100 and BS-2101 on the suction side of fuel pool cooling pumps, P-51A and P-51B at Location B-5. NEI-95-10, "Industry Guideline for Implementing The Requirements of 10 CFR Part 54 – The License Renewal Rule," Revision 4, states that "filtration" is an example of a component intended function in Table 4.1-1. Based on the information provided in the LRA and in the license renewal drawings provided for the spent fuel pool cooling system, it appears that in addition to the fluid pressure boundary function, the basket strainers also have a filtration function.

In order for the staff to complete its review, justify the exclusion of the filtration function of the spent fuel pool cooling systems basket strainers.

NMC Response to NRC RAI 2.3.3.14-2

For Palisades the spent fuel pool water chemistry is maintained by the water chemistry program. It uses the Spent Fuel Pool Demineralizer and some filters that float on the top of the spent fuel pool to maintain the water chemistry. Strainers designed on pump suctions are for pump protection, which is not an intended function of license renewal. The basket strainers provide the intended function of fluid pressure boundary and are not required for filtration.

RAI 2.3.3.14-3

LRA Section 2.3.3.14 states in the "System Function Listing," SFP-03, that maintaining spent fuel pool boron concentration at or greater than required concentrations meets criteria 10 CFR 54.4(a)(1) and is therefore a system intended function. It further implies that there are components associated with performing this intended function but that they are outside the scope of license renewal.

In order for the staff to complete its review, more information about the method and components used to maintain boron concentration at or greater than its required concentrations is required. Identify the method and the components that perform the intended function. Also, justify the exclusion of those components from the scope of license renewal and from being subject to an AMR in accordance with the requirements of 10 CFR 54.4(a) and 10 CFR 54.21(a)(1), respectively.

NMC Response to NRC RAI 2.3.3.14-3

The concentration of boron in the Spent Fuel Pool System is maintained by water exchange with the Safety Injection and Refueling Water Tank (SIRW). The SIRW Tank boron concentration is maintained by blending concentrated boric acid from the Recycled Boric Acid Storage Tank (T-96), thru the Concentrated Boric Acid Tanks (T-53A/B), Concentrated Boric Acid Pumps (P-56A/B), the Boric Acid Blender (M-51) and demineralized water from the Primary System Makeup Water Tank (T-90) to the Boric Acid Blender (M-51). The referenced comment is in error; the associated components are in scope of license renewal, although they are not in the Spent Fuel Pool Cooling system.

In LRA Section 2.3.3.14, System Function SFP-03, on page 2-152, the comment is hereby revised to read as follows: "This system function provides reactivity control. The components associated with the addition of boron concentration to the Spent Fuel Pool are evaluated in the Engineered Safeguards, Chemical and Volume Control and Demineralized Water Systems, as applicable."

RAI 2.3.3.15-1

The following components are shown on the waste gas license renewal drawings within the scope of license renewal. However, LRA Table 2.3.3-15 does not list these components as component groups subject to an AMR. These components serve a pressure boundary intended function and are passive and long-lived. Clarify if these components are already included in LRA Table 2.3.3-15 as part of another component group. 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) Drain traps at several locations on LR-211, Sheets 2 and 3.
(b) A flow indicator on LR-211, Sheet 3, at Location G-4.

NMC Response to NRC RAI 2.3.3.15-1

(a) The drain traps are in scope of license renewal due to 10CFR54.4(a)(2) spatial orientation (spray) and have a intended function of "provide fluid pressure boundary" only. AMR of the drain trap pressure boundaries is addressed as part of Component Type "Pipe & Fittings" because of similar materials, environments, AERMs and AMPs.

(b) FI-1120 was conservatively evaluated as in scope even though it does not serve a pressure boundary function; however, it is not subject to AMR due to being "Active" per NEI 95-10.

RAI 2.3.3.15-2

License renewal Drawing LR-211, Sheet 3, shows pressure indicator/alarms associated with the waste gas decay tanks within the scope of license renewal. However, pressure transmitters and piping to these transmitters are shown outside the scope of license renewal. LRA Section 2.1.3.1, "Active/Passive Determination," second bullet on Page 2-34 states that all instruments are considered active unless they form an integral part of the pressure retaining boundary. These instruments serve a pressure boundary intended function and should be subject to an AMR. Justify the exclusion of these instruments from the scope of license renewal and from being subject to an AMR in accordance with the requirements of 10 CFR 54.4(a) and 10 CFR 54.21(a)(1), respectively.

NMC Response to NRC RAI 2.3.3.15-2

The pressure indicator alarms are in scope of license renewal because they are identified as safety related for their seismic mounting in the Q-list as they are mounted on a safety related panel. The hangers/supports for these components are in-scope for license renewal and are evaluated in the appropriated structural commodity. The components do not support any other license renewal criterion and are, therefore, not included for further evaluation. The Waste Gas Decay Tanks are in scope of license renewal due to 10CFR54.4(a)(2) (seismic II attached to I), and are anchor points for the Waste Gas process piping to and from the tanks. The pressure transmitters and respective piping are not in scope of license renewal due to not meeting the requirements of 10CFR54.4(a)(1), (2) or (3).

RAI 2.3.3.15-3

LRA Section 2.3.3.15, on Page 2-154, states that the hydrogen recombiners are a subsystem to the waste gas system and are within the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a)(1). License renewal Drawing LR-218, Sheet 2, shows hydrogen recombiners inside the containment at Location H-8 within the scope of license renewal. However, LRA Table 2.3.3-15 of the waste gas system does not list hydrogen recombiners as a component group subject to an AMR. Clarify whether the components of the hydrogen recombiners are scoped and screened as complex assemblies. 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." Clarify if hydrogen recombiners are already included in LRA Table 2.3.3-15 as part of any other component group. If not, justify the exclusion of hydrogen recombiners from being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

NMC Response to NRC RAI 2.3.3.15-3

The hydrogen recombiners (M-69A and B) are in scope of license renewal and are age-managed by the EQ program. The hydrogen recombiners were not scoped and screened as complex assemblies.

RAI 2.3.3.15-4

FSAR Section 11.3.2.2, on Page 11.3-2, states that "if the surge tank is discharging directly to the ventilation stack, a high-radiation condition (as identified by a continuously operating monitoring system taking samples from the discharge line) will automatically close the discharge valve which is upstream of the stack. On occurrence of high surge tank pressure, a waste gas compressor starts automatically and, taking suction from the surge tank, discharges to the decay tanks." License renewal Drawing LR-211, Sheet 2, shows waste gas compressors C-54, at Location C-3, within the scope of license renewal. However LRA Table 2.3.3-15 does not list compressors as a component group subject to an AMR. Also, a filter upstream and a cooler downstream of this compressor, with their associated piping, are shown outside the scope of license renewal. Further, waste gas compressors C-50 A/B, at Locations D-3 and E-3, are shown outside the scope of license renewal.

(a) Justify the exclusion of the waste gas compressor C-54 from being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).
(b) Explain why the filter and cooler associated with C-54 are outside the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a).
(c) Explain how waste gas compressors C-50A/B function differently from C-45 and why C-50A/B are outside the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a).

NMC Response to NRC RAI 2.3.3.15-4

Responses are provided for each item as follows:

(a) C-54 is in scope of license renewal and subject to AMR due to 10CFR54.4(a)(2) (seismic II attached to I), and is an anchor point. The hangers/supports for C-54 are in scope for license renewal, and are evaluated in the appropriate structural commodity.

(b) Filters (F-100,101 & 102) are in scope of license renewal and subject to AMR due to 10CFR54.4(a)(2) (seismic II attached to I), and is an anchor point. The compressor skid filter and cooler are not in license renewal scope due to not providing an intended function.

(c) As discussed in (a) above, C-54 is in scope of license renewal due only to 10CFR54.4(a)(2) (seismic II attached to I), because it is an anchor point. C-50A and B do not provide any license renewal intended function, and are, therefore, not in scope.

RAI 2.3.3.15-5

LRA Section 2.3.3.15, "System Description," second paragraph on Page 2-155, states that the boundaries of the portions of the waste gas system within the scope of license renewal include the piping and valves for containment isolation located between containment penetration #52 to CV-1104. However, the staff is unable to find this section of piping on the license renewal drawings provided for the waste gas system. Identify where this section of piping is located on the license renewal drawings provided for the waste gas system.

NMC Response to NRC RAI 2.3.3.15-5

This statement is in error. The Containment isolation piping and valves located between Containment penetration #52 to CV-1104 were evaluated as part of the Radioactive Waste System (RWS) in Section 2.3.3.11 as shown on color-coded drawing LR-M-211, Sheet 1 (F-7). LRA Section 2.3.3.15, System Description, fifth paragraph, on page 2-155, is hereby revised to delete "2) the piping and valves for Containment isolation located between Containment penetration #52 to CV-1104." LRA Section 2.3.3.11, System Description, fifth paragraph, on page 2-137, item 4), is hereby revised to read, "4) Containment isolation components for containment penetrations to and from drain tanks."

RAI 2.3.3.16-3

License renewal Drawing LR-220, Sheet 2, shows a T-36 permanganate filter at Location G-3, within the scope of license renewal in accordance with 10 CFR 54.4(a). However, LRA Table 2.3.3-16 of the domestic water system does not list filters as component types subject to an AMR. LRA Section 2.1.3.2 states that oil, grease and filters (both system and component filters) have been treated as consumables because either a program for periodic replacement exists, or a monitoring program exists that replaces these consumables, based on established performance criteria, when their condition begins to degrade but before there is a loss of intended function. If this filter is excluded from being subject to an AMR because it is subject to replacement as defined in 10 CFR 54.21(a)(1)(ii), describe the schedule for periodic replacement or the monitoring program and the criteria for replacement if they are replaced on condition. If not, justify the exclusion of this filter from being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

NMC Response to NRC RAI 2.3.3.16-3

Permanganate filter,T-36, is in scope of LR due to 10CFR54.4(a)(2) spatial orientation (spray) with an intended function of "fluid pressure boundary," and is subject to AMR. T-36 is included in Component Group "Accumulator" in LRA Table 2.3.3.16.

RAI 2.3.3.17-1

License renewal Drawing LR-220, Sheet 2, shows chemical addition tanks (T-19B/C) within the scope of license renewal. However neither the associated level gauges, tank drains, nor piping to the suction of the chemical addition pumps (P-15E/F/G) are included within the scope of license renewal, at Locations A-3 and B-4, respectively. Similarly, neither the level gauge or drain on the hydrazine addition tank (T-16) are shown within the scope of license renewal on the same drawing at Location C-8. In contrast, level gauges on the morpholine and boric acid tanks (T-15 and T-19A) as well as the lines to the suction of associated pumps (P-15A/B/C/D) are shown within the scope of license renewal. It appears that level gauges, tank drains, or piping to the suction of the chemical addition pumps are located in an area where their failure could cause failure of safety-related components. Therefore, they should be within the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a)(2). Clarify the basis for this difference.

NMC Response to NRC RAI 2.3.3.17-1

The non-pressurized chemical addition tanks (T-16, T-19B and T-19C) and piping are within spill retention dikes. The tanks are in scope because they are the major anchoring component for (a)(2), seismic II attached to I, piping. The other piping, etc., associated with these tanks (except as shown) were excluded from scope as there are no spatial interaction or seismic II attached to I concerns for (a)(2). In the cases of T-15 and T-19A, the tanks were included because they are the major anchoring component for (a)(2), seismic II attached to I, piping. Similar to the tanks discussed above, only the highlighted attached piping is in scope.

RAI 2.3.3.17-2

License renewal Drawing LR-655, Sheet 2, shows pumps P-101, P-100A and P-100B at Locations E-4, D-4 and C-4, respectively, within the scope of license renewal in accordance with 10 CFR 54.4(a)(2). However, the suction of these pumps is shown outside the scope of license renewal. Justify the exclusion of the suction of these pumps from the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a).

NMC Response to NRC RAI 2.3.3.17-2

The non-pressurized chemical addition suction piping is within spill retention dikes and excluded from scope as there are no spatial interaction or seismic II attached to I concerns for (a)(2). The pump and discharge piping is pressurized with potential spatial interaction consequences, and is, therefore, in scope of license renewal.

RAI 2.3.3.17-6

License renewal Drawing LR-653, Sheet 1, shows pumps P-47A and P-47B as within the scope of license renewal in accordance with 10 CFR 54.4(a)(2). However, the piping and valves from these pumps, including basket strainers BS-5393 and BS-5394 up to Tank T-44, are shown outside the scope of license renewal. Justify the exclusion of this section of piping from the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a).

NMC Response to NRC RAI 2.3.3.17-6

The non-pressurized chemical addition suction piping is within spill retention dikes and excluded from scope as there are no spatial interaction or seismic II attached to I concerns for (a)(2). The pump and discharge piping is pressurized with potential spatial interaction consequences, and is, therefore, in scope of license renewal.

RAI 2.3.4.1-2

LRA Table 2.3.4-1 lists "CST Heater Shell," "CST Heater Tubes," "FW Heater Shell and Channel Head" and "Heat Exchangers" separately as component groups subject to an AMR. LRA Section 2.1.2.2 on Page 2-29 states that "heat exchangers were divided into subcomponents as necessary to identify all applicable material/environment/intended function combinations."

(a) Clarify whether the component group "Heat Exchangers" in LRA Table 2.3.4-1 includes all subcomponents of the heat exchangers (shell, tubes, tube sheets, channel heads, etc.) as being subject to an AMR.

(b) Identify specifically which heat exchangers (other than the CST heat exchanger and feedwater heaters) are included in the group "Heat Exchangers" in LRA Table 2.3.4-1.

(c) LRA Section 2.3.4.1, on Page 2-165, specifies feedwater heaters E-2A/B through E-5A/B as portions of the condensate and condenser system within the scope of license renewal. Clarify why feedwater heaters E-1A/B, which are shown on license renewal Drawing LR-207, Sheet 1C, are not specified in this LRA section. Explain how feedwater heaters E-1A/B differ from the other heaters.

(d) Clarify whether the subcomponents, except those listed above, of the CST heaters and FW heaters are excluded from the scope of license renewal. If so, provide justification for their exclusion from the scope of license renewal and from being subject to an AMR in accordance with the requirements of 10 CFR 54.4(a) and 10 CFR 54.21(a)(1).

NMC Response to NRC RAI 2.3.4.1-2

Responses are provided for each item as follows:

(a) Component Group "Heat Exchanger" listed in LRA Table 2.3.4-1 includes Condensate System heat exchanger components (channel head and shell) required for the heat exchangers to perform their 10CFR54.4(a)(2) spatial interaction intended function of "provide fluid pressure boundary", in addition to the Condensate Storage Tank (CST) heat exchanger channel head which is safety related. The CST heat exchanger shell, CST heat exchanger tubes and the feedwater heater shell and channel head are listed as separate line items on LRA Table 2.3.4-1.

(b) Component Group "Heat Exchanger" listed in LRA Table 2.3.4-1 includes the following Condensate System components as being subject to AMR due to 10CFR54.4(a)(2) spatial orientation: Feedwater Heater Drain Cooler Channel head (E-7A/B), Air Injector and Inner & After Condenser Channel head (E-8), Turbine Gland Seal Condenser Channel head (E-19), and Main Condenser Shell (E-10). This Component Group also includes the CST Heat Exchanger Channel head (E-27) as subject to AMR due to 10CFR54.4(a)(1). The E-7A/B Shells are evaluated in the Heater Extraction and Drain System, and the E-8 Shell and E-19 Shell are evaluated in the Main Air Ejection and Gland Seal System.

(c) E-1A/B should also be included with this group. LRA Section 2.3.4.1, page 2-165, 2nd paragraph, Item 3) is hereby changed to read, "The CDS piping and components from the Main Condenser Hotwell, including the Hotwell, through the Condensate Pumps, Air Ejector Inter & After Condenser, Main Turbine Gland Seal Condenser, and up to the point where the piping exits the Turbine Building." A new Item 4) is hereby added as follows: "The CDS piping and components from the point where the piping enters the Turbine Building, through the Drain Coolers, Feedwater Heaters E-1A/B thru E-5A/B, to the Steam Generator Feed Pumps."

(d) LRA Table 2.3.4-1, Component Group "FW Heater Shell and Channel Head" includes FW Heaters E-1A/B thru E-5A/B Channel heads. The FW Heater Shell are included in the Heater Extraction and Drain System. The FW Heater Channel heads and Shells are in scope of license renewal due to 10CFR54.4(a)(2) spatial orientation (spray) and require an AMR. The FW Heater tubes and tube sheets are not in scope of license renewal due to not meeting the requirements of 10CFR54.4(a)(1), (2), or (3). LRA Table 2.3.4.-1, Component Groups "CST Heater Shell, CST Heater Tubes, Heat Exchanger" (which includes CST Heater Channel head) are in scope of license renewal due to 10CFR54.4(a)(1) safety-related, and require an AMR. For completeness, the CST Heater Tubes component type listed in LRA Table 2.3.4-1 on page 2-168, and Table 3.4.2-1 on page 3-220, is hereby revised to "CST Heater Tubes and Tube Sheet." Component Group "CST Heater Tubes and Tube Sheet" is in scope of license renewal due to 10CFR54.4(a)(1) safety-related, and requires an AMR .

RAI 2.3.4.1-3

License renewal Drawing, LR-207, Sheet 1B, shows a flexible connection at Location E-6, within the scope of license renewal. However, the flexible connection, at Location E-3, is shown outside the scope of license renewal. Justify the exclusion of the latter flexible connection from being within the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a). Also, LRA Table 2.3.4-1 does not list flexible connections as a component group subject to an AMR. These flexible connections serve a pressure boundary intended function and are passive and long-lived. Clarify if flexible connections are already included in LRA Table 2.3.4-1 as part of any other component group. If not, justify the exclusion of the flexible connections from being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

NMC Response to NRC RAI 2.3.4.1-3

The flexible connections on drawing LR-M-207, Sheet 1B, at both locations E-3 and E-6 are included in scope of license renewal. The connections are not subject to AMR due to being replaced every 3 years as preventive maintenance activities. Drawing LR-M-207, Sheet 1B, should highlight the flex connection, at location E-3, as being in scope of License Renewal.

RAI 2.3.4.2-1

LRA Section 2.3.4.2, third paragraph, Item 4, on Page 2-169, identifies a system boundary within the scope of license renewal at valves MV-PMU100 (locked open) and MV-PMU109 (normally open) downstream of the primary system makeup storage tank (T-81). Also, license renewal Drawing LR-220, Sheet 1 (Locations G-4 and G-5), shows the piping upstream of these valves, including the valves within the scope of license renewal. However, the piping down stream of these valves, including the buried pipe, is shown outside the scope of license renewal. Clarify the basis for excluding the piping downstream of valves MV-PMU100 and MV-PMU109 from the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a). This LRA section states that T-81 provides condensate/feedwater supply to the condensate storage tank.

Similarly, clarify the basis for excluding the following lines associated with the primary system makeup storage tank (T-90) from the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a): lines HBD-14-3", HBD-15-2" and HBD-16-3", on license renewal Drawing LR-652, Sheet 1, at Locations G-4 and G-5, and associated components from the primary system makeup storage tank (T-90) through and including the buried HCC piping downstream. FSAR Section 9.4.2.1 states that T-90 is one of the sources which supplies fuel pool makeup water.

NMC Response to NRC RAI 2.3.4.2-1

The section of the piping through MV-PMU100 and MV-PMU109 up to the point where it enters the ground is in scope for (a)(2) due to spatial interaction with the adjacent Demineralized Water System piping. Thus, where it goes below grade there is no longer any concern for spray and that portion of the piping is not in scope. Drawing LR-M-220-1 should show the piping above ground (piping HC-11-1" and HC-11-3") as highlighted. LRA Section 2.3.4.2, third paragraph, Item 4, on Page 2-169, is hereby revised to read, "4) piping located downstream of T-81 through valves MV-PMU100 and MV-PMU109 to the point where the lines enter the ground."

T-90 is in scope for seismic reasons only. The piping from the tank does not need to be in scope until it exits the ground (for (a)(2) spatial interaction only) in the auxiliary building. FSAR Section 9.4.2.1 states, "Fuel pool makeup water is supplied from the Primary Water Makeup Tank T-90, the Recycled Boric Acid Storage Tank T-96, the Safety Injection & Refueling Water Tank T-58 and Utility Water Tank T-91. In the event of a considerable loss of pool water, the fire system can be used to replenish the pool water content." For License Renewal, Palisades credits the Safety Injection & Refueling Water Tank (T-58) for makeup to the fuel pool.

RAI 2.3.4.3-2

License renewal Drawing LR-207, Sheet 2, shows restrictive orifices RO-0783A/B at Locations F-6 and G-6, within the scope of license renewal. The function of these restrictive orifices is to provide minimum flow recirculation at maximum pressure for the AFW pump. In addition, other restrictive orifices are shown on the license renewal drawings for the feedwater system within the scope of license renewal. LRA Table 2.3.4-3 does not list restrictive orifices as a component group subject to an AMR. However, the intended function "flow restriction" is listed in this table for the component group "pipe and fitting." Clarify if the flow restrictive orifices are already included in LRA Table 2.3.4-3 in the component group "piping." If so, identify the intended function that the feedwater restrictive orifices serve. If not, justify their exclusion from being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

Additionally, flow nozzles and metering orifices (FE-0783A, FE-0783B, FE-0783C, FE-0737, FE-0736, FE-0727, FE-0749), used for flow measurement are shown within the scope of license renewal on license renewal drawings for the feedwater system (Locations F-6, G-6, D-6, A-5, C-5, G-4, and E-4 respectively). However, LRA Table 2.3.4-3 does not list flow nozzles or metering orifices as component groups subject to an AMR. Clarify whether these flow nozzles and metering orifices are already included in LRA Table 2.3.4-3 as part of any other component group. If so, identify their intended function that should be maintained during the period of extended operation. If not, justify the exclusion of flow nozzles and metering orifices from being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

NMC Response to NRC RAI 2.3.4.3-2

RO-0783A/B/C are subject to AMR and have intended functions of "fluid pressure boundary" and "flow restriction". The other feedwater system restrictive orifices are subject to AMR and have an intended function of "fluid pressure boundary." The restrictive orifices are included in Component Group "Pipe and Fittings" on LRA Table 2.3.4-3 on page 2-180.

Flow elements (flow nozzles and metering orifices, referred to above) FE-0783A/B/C, 0737, 0736, 0727 and 0729 are subject to AMR and have an intended function of "fluid pressure boundary". The flow elements are included in Component Group "Pipe and Fittings" on LRA Table 2.3.4-3 on page 2-180.

RAI 2.3.4.3-4

LRA Table 2.3.4-3 of the feedwater system lists "turbines" as a component group subject to an AMR. The auxiliary feedwater pump turbine K-8, at Location C-7, and its associated components are shown within the scope of license renewal on license renewal Drawing LR-205. However, the turbine governor and mechanical speed sensor associated with this turbine are not listed in LRA Table 2.3.4-3 as component groups subject to an AMR. Clarify whether these components are already included in LRA Table 2.3.4-3 under the component group "turbine." If not, justify the exclusion of the turbine governor and the turbine mechanical speed sensor from being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

NMC Response to NRC RAI 2.3.4.3-4

The Auxiliary Feedwater Pump Turbine (K-8) governor and Mechanical Speed Sensor are in scope of license renewal, but are not subject to AMR due to being "Active" components.

RAI 2.3.4.4-1

A portion of heaters E-2A/B is shown inside of the condenser on license renewal Drawing LR-206, Sheet 1A, at Location C-4/5, within the scope of license renewal (as is the associated boundary of the condenser). Heaters E-1A/B appear to be similarly situated (same drawing, Location B-4/5), yet the portion inside the condenser is not shown within the scope of license renewal. Explain the rationale for the distinction and clarify the physical meaning of the condenser boundary that transects the heaters' symbol.

NMC Response to NRC RAI 2.3.4.4-1

LR-M-206, Sheet 1A, is correct to show the portions of Heaters E-1A/B and E-2A/B that extend into the condenser as out of scope. As there is no safety related equipment inside the condenser, these portions of the heaters do not meet any of the scoping criteria.

RAI 2.3.4.4-2

License renewal September 14, 2005, Drawing LR-207, Sheet 1C, shows flexible connections at Locations E-3 and G-3, within the scope of license renewal. However, LRA Table 2.3.4-1 does not list flexible connections as a component group subject to an AMR. These flexible connections serve a pressure boundary intended function and are passive and long-lived. Clarify if flexible connections are already included in LRA Table 2.3.4-4 as part of any other component group. If so, identify their intended function. If not, justify the exclusion of flexible connections from being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

NMC Response to NRC RAI 2.3.4.4-2

The Heater Drain Tank Pump seal cooling flexible connections are in scope of license renewal due to 10CFR54.4(a)(2) spatial orientation (spray), and are subject to AMR since they are replaced on condition rather than a set frequency. Therefore, the flexible connections are incorporated into Component Group "Pipe & Fittings" in LRA Tables 2.3.4-4 and 3.4.2-4.

RAI 2.3.4.5-1

License renewal Drawing LR-206, Sheet 1C, shows the following components within the scope of license renewal. However, LRA Table 2.3.4-5 does not list these components as being subject to an AMR. These components serve a pressure boundary intended function and are passive and long-lived. Clarify if these components are already included in LRA Table 2.3.4-5 as part of any other component group. 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) Ejectors at several locations.
(b) Drain traps at several locations. Clarify if drain traps are part of the component group "steam traps" in LRA Table 2.3.4-5.
(c) Flexible connections at Locations C-6 and D-6.
(d) Vacuum pump (P-213) at Location E-5.

NMC Response to NRC RAI 2.3.4.5-1

Responses are provided to the listed items as follows:

(a) Steam Jet Air Ejector (SJAE) Primary and Secondary are included in LRA Table 2.3.4-5 as Component Group - "Blowers Fans Compressor Vacuum"
(b) Drain traps are included in LRA Table 2.3.4-5 as Component Group - Traps (Steam).
(c) Further evaluation has determined that the Gland Seal Condenser Exhauster (C-1A/B) and its piping and components do not perform an intended function per 10CFR54.4(a)(2) spatial orientation (spray). The exhauster provides a vacuum in the Gland Seal Condenser and discharges air/gas to outside the Turbine Building. Should the Exhauster inlet piping and components develop a through-wall flaw, in-leakage would occur. Should the exhauster discharge piping and components develop a through-wall flaw, air/gas would be discharged into the Turbine Building. However, no spray would occur and safety-related equipment located in the area would not be affected. Therefore, the Gland Seal Condenser Exhauster and its piping and components are hereby deleted from scope of License Renewal. The associated highlighting on drawing LR-M-206 Sheet 1C should be disregarded.
(d) Vacuum pump (P-213) is included in LRA Table 2.3.4-5 as Component Group - Blowers Fans Compressor Vacuum.

RAI 2.3.4.6-1

One function of the ATWS mitigation system is to provide a diverse means of initiating a main turbine trip following an ATWS event. The first stage (impulse chamber) pressure on the high-pressure turbine provides an actuating signal to this mitigation system. The in-line pressure transmitters which sense this pressure, along with their associated piping and components, are therefore within the scope of license renewal in accordance with 10 CFR 54.4(a)(3). However, license renewal Drawing LR-205, Sheet 1, shows these pressure transmitters, at Location D-3, outside the scope of license renewal. In addition, the component group "indicators/recorders" listed in LRA Table 2.3.4-6 is limited to "level glasses" only. This implicitly excludes the above pressure transmitters from being subject to an AMR.

Justify the exclusion of the above mentioned pressure transmitters and associated piping and components from the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a).

NMC Response to NRC RAI 2.3.4.6-1

The Palisades ATWS mitigating design does not use turbine first stage pressure as an input. It, rather, uses pressurizer pressure inputs. The associated instruments are in scope of license renewal, and are not subject to AMR due to being "Active" per NEI 95-10.

RAI 2.3.4.6-4

License renewal Drawing LR-205, Sheet 1, shows main steam piping runs that serve as main turbine control valves stem leakoff piping to the gland seal condenser, at Locations C-5 through C-7 and E-5 through E-7. However, the only portion shown within the scope of license renewal is at Location C-4/5, which continues to license renewal Drawing LR-206, Sheet 1C, the gland seal condenser. The remainder of the piping is shown outside the scope of license renewal with no clear indication where the license renewal boundary is. Explain why the identified piping is not within the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a).

NMC Response to NRC RAI 2.3.4.6-4

The main turbine control valves' stem leakoff piping located on the Turbine Deck is not in scope of License Renewal due to not meeting 10CFR54.4(a)(1), (2), or (3) Criteria. This piping is not located in an area containing safety-related equipment. However, the portion of the piping below the turbine deck is in an area with safety related equipment, and requires an AMR due to 10CFR54.4(a)(2). This portion of the piping is highlighted on drawing LR-M-205 Sheet 1.

RAI 2.3.4.7-3

LRA Section 2.3.4.7, for the turbine generator system states in the "System Function Listing TGS-AT," on Page 2-198, that the system contains structures and/or components required by the current licensing basis for anticipated transients without scram (ATWS). It further explains that the turbine trip signal is an input to ATWS. The signal circuitry is in the turbine generator system. The turbine stop valves are in the main steam system.

FSAR Section 7.5.2.6, on Page 7.5-11, identifies the ATWS trip as an input to the "emergency trip 20 ET solenoid" and the emergency trip 20 ET solenoid directly releases EHC fluid to the drain. However, based on the information provided in the FSAR and in the LRA, it is not clear which mechanical components (e.g., EHC components) of the turbine generator system are within the scope of license renewal in accordance with the requirements of 10 CFR 54.4(a)(3) criterion for ATWS.

Provide information so that the staff can identify the mechanical components of the turbine generator system that are within the scope of license renewal in accordance with the requirements of the ATWS regulating event of 10 CFR 54.4(a)(3).

NMC Response to NRC RAI 2.3.4.7-3

No mechanical components are credited for ATWS. Pressurizer High Pressure is the input to ATWS which results in Turbine Trip, and the referenced function note is incorrect. System Function TGS-AT in LRA Section 2.3.4.7, Page 2-198, is hereby revised to read, "Pressurizer High Pressure is the input to ATWS which results in Turbine Trip. The signal circuitry for the ATWS turbine trip is in the Turbine Generator System. The Turbine stop valve is in the Main Steam System."