



Palisades Nuclear Plant
Operated by Nuclear Management Company, LLC

November 18, 2005

10 CFR 54

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

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

Response to NRC Requests for Additional Information Relating to License Renewal
dated October 24, 2005

In two letters dated October 24, 2005 (ML052980033 and ML052980038), the Nuclear Regulatory Commission (NRC) requested additional information regarding the License Renewal Application for the Palisades Nuclear Plant. Enclosures 1 and 2 provide the Nuclear Management Company (NMC) response to each NRC request. In addition, Enclosure 3 provides clarifications to previous NMC responses to RAIs 2.1-1, 3.5.2-2, 2.3.3.4-2, 2.3.3.10-7, 3.1-1, 2.3.4-1, B2.1.20-1(b), B2.1.20-1(c), and B2.1.20-2(b).

Please contact Mr. Robert Vincent, License Renewal Project Manager, at 269-764-2559, if you require additional information.

Summary of Commitments

This letter provides one new preliminary commitment (i.e., subject to acceptance in the NRC SER for the renewed operating license), as follows:

NMC will perform a neutron absorption ("blackness") test of selected cells in the NUS spent fuel racks prior to March 24, 2011, to validate that there is no significant degradation of the neutron absorption capability. An additional test will be performed within the first 10 years following the start of the period of extended operation. If degradation is identified in either test, an evaluation of the condition will be performed under the NMC Corrective Action Program. If applicable, this evaluation will consider the potential need for additional or more frequent testing.

A112

I declare under penalty of perjury that the foregoing is true and correct. Executed on November 18, 2005.


Paul A. Harden

Site Vice President, Palisades Nuclear Plant
Nuclear Management Company, LLC

Enclosures (3)

CC Administrator, Region III, USNRC
 Project Manager, Palisades, USNRC
 Resident Inspector, Palisades, USNRC
 License Renewal Project Manager, Palisades, USNRC

ENCLOSURE 1

**NMC Response to NRC Request for Additional Information (ML052980033)
Dated October 24, 2005**

(1 Page)

ENCLOSURE 1
NMC Response to NRC Request for Additional Information (ML052980033)
Dated October 24, 2005

RAI 3.1.2-1(a)

In Table 3.1.2-1 (Page 3-40 of the LRA), two materials are listed for the pressurizer quench tank: epoxy-coated carbon steel and carbon steel (for the shell and heads). The latter material forms an external surface and is exposed to containment air. Consistent with the GALL Report, it is managed using the Boric Acid Corrosion Program.

According to the PNP FSAR, only the interior of the pressurizer quench tank is coated with epoxy, and the tank is blanketed with nitrogen. However, the PNP LRA identifies the environment to which the epoxy-coated steel is exposed as "containment air (ext.)."

Please confirm the nature of the environment(s) to which the epoxy-coated carbon steel is exposed. Also clarify the rationale for applying the system monitoring and One-Time Inspection Programs to manage loss of material from this location.

NMC Response to NRC RAI 3.1.2-1(a)

The environments for the internal surfaces of the pressurizer quench tank are Treated Water (borated water), and Gas (nitrogen) for the space above the borated water level in the tank. The quench tank is normally less than 212 degrees F.

The intent of the Epoxy Coated Carbon Steel line items in LRA Table 3.1.2-1 was as follows:

Containment Air (Ext) is for the external surface of the pressurizer quench tank, carbon steel, and the System Monitoring Program was assigned to manage loss of material due to general corrosion.

Treated Water (Int) is for the internal surfaces of the pressurizer quench tank, epoxy coated carbon steel, and the One-Time Inspection Program was assigned to verify the condition of the epoxy coating for the period of extended operation.

For clarification, the Pressurizer Quench Tank line item entries of "Containment Air (Ext); Loss of Material; System Monitoring Program; IV.C2.6-b; 3.1.1-38; E" are hereby moved to the Pressurizer Quench Tank Shell and Heads line item. This move clarifies the table by more logically grouping the external effects together.

For completeness, the Pressurizer Quench Tank line item of Table 3.1.2-1 on page 3-40 is hereby revised to add an additional Environment, Aging Effect Requiring Management, Aging Management Program, NUREG 1801 Volume 2 Line Item, Table 1 Item and Note as follows: "Gas (Int)" for Environment, "None" for Aging Effect Requiring Management; "None Required" for Aging Management Programs; [None cited] for NUREG-1801 Volume 2 Line Item; [None cited] for Table 1 Item; [None cited] for Notes. In addition, a new bullet "Gas (Int)" is added to LRA Section 3.1.2.1.1, on page 3-13, under "Environment."

ENCLOSURE 2

**NMC Responses to NRC Requests for Additional Information (ML052980038)
Dated October 24, 2005**

(7 Pages)

Enclosure 2
NMC Responses to NRC Requests for Additional Information (ML052980038)
dated October 24, 2005

RAI 2.3.2.1(a)

In Section 2.3.2.1, you have provided a description of engineered safety features (ESF) electrical actuation subsystems. However, in Section 2.5, you did not include the scoping criteria for these electrical components. Provide a listing of each electrical component associated with ESF and provide scoping criteria for each component.

NMC Response to NRC RAI 2.3.2.1(a)

Most electrical components are active and are not subject to aging management review. The component types that are subject to aging management review are typically addressed by license renewal applicants as commodities. Therefore, scoping of Palisades' electrical components was generally performed at a system level based on system-level functions. Many electrical components were scoped as part of their associated mechanical systems since they did not require evaluation on a component basis. This is described in LRA Sections 2.1.2.2, 2.1.2.4, and 2.5.

Scoping of the electrical ESF "subsystems" identified in Section 2.3.2.1 is consistent with that approach. The two electrical "subsystems" mentioned in Section 2.3.2.1 are as described in FSAR Section 7.3. FSAR Section 7.3 is referenced in the ESF scoping section of the LRA. The electrical components associated with the ESF actuation "subsystem" and the Normal Shutdown and Design Basis Accident Sequencers "subsystem" were grouped with the electrical containment isolation actuation components in LRA Section 2.5.3 for evaluator convenience.

Accordingly, the ESF-related electrical functions for scoping are listed in section 2.5.3, on pages 2-270 and 2-271, as system functions SIS-01, 02 and SEQ-01, 02. A general description of the electrical system scoping boundaries relevant to ESF is provided on pages 2-268 and 2-269. Any in-scope ESF electrical components that are subject to license renewal aging management review have been included in the electrical commodities defined in Section 2.5.1.

A listing of the ESF electrical components, which were addressed individually as part of Palisades' scoping activities, has been provided to the NRC License Renewal Project Manager.

Enclosure 2
NMC Responses to NRC Requests for Additional Information (ML052980038)
dated October 24, 2005

RAI 2.5.6-1

You have stated that safety functions RIAs 5, 6, 9, 12, 13, 16, and 17 are Q-listed and are in the boundary of license renewal. Why are these systems not in-scope of license renewal? Provide appropriate check mark for 10 CFR 54.21(a) criteria.

NMC Response to NRC RAI 2.5.6-1

As discussed in the response to RAI 2.5.6-2 below, some Q-listed items do not meet any of the license renewal scoping criteria. The term "Q-listed" only indicates that NMC has chosen to apply the Quality Program to maintenance and modifications of the subject component. This designation alone is not an indicator that an item is safety-related, nor can it be used to indicate that an item meets a license renewal scoping criterion. The information contained in the Q-List was used as an input to assist the evaluator in determining whether or not a component was in scope for license renewal.

In System Functions RIA-09 and RIA-12, Criterion 1 is checked which indicates that the listed RIAs are in scope for license renewal because their electrical function is safety related.

As indicated in the comments for the functions RIA-05, 06, 13, 16 and 17, the components are Q-listed (i.e., subject to the QA Program) for their seismic mounting only, and are, therefore, not safety-related. Functions RIA-05, 06, 13, 16 and 17 are electrical functions; the seismic structural mounting functions of the listed RIAs are addressed under the System Function RIA-NSAS which brings them in scope for Criterion 2. However, the note under RIA-NSAS was intended only to provide examples, and not to list all of the RIAs that are in scope of license renewal because of this function. For clarity, therefore, the comment under function RIA-NSAS on page 2-284 is hereby deleted from the LRA."

Enclosure 2
NMC Responses to NRC Requests for Additional Information (ML052980038)
dated October 24, 2005

RAI 2.5.6-2

When systems/components are in Q-list, why aren't they in-scope of license renewal?

NMC Response to NRC RAI 2.5.6-2

The term "Q-listed" only indicates that NMC has chosen to apply the Quality Program to maintenance and modifications of the subject component. This designation can not be used by itself to indicate that an item is safety-related, nor can it be used to indicate that an item meets a license renewal scoping criterion.

This is addressed in section 2.1.1.1.3 of the LRA, on page 2-3, which stated:

"Within the Palisades equipment database, components are coded as safety related and/or one of several other classifications based on design and safety functions. Components are not coded as non-safety per se, but several of the codes relate to non-safety related design considerations. The combination of codes determines whether the components are subject to the Consumers Energy Quality Program (i.e., Q-listed). All safety related components, and some non-safety related components, are identified as Q-Listed in the equipment database. The portion of the database which contains the various codes is called the Q-List, and is formally controlled. This list was used for the classification of equipment for license renewal."

In summary, the Q-Listing status of a component, in itself, did not determine whether the component was in scope for license renewal. The overall process for determining which systems, structures and components are in scope for license renewal is described in LRA Section 2.1.2. The information contained in the Q-List database provided just one of several inputs to assess whether each component did or did not meet any license renewal scoping criteria.

Enclosure 2
NMC Responses to NRC Requests for Additional Information (ML052980038)
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RAI 2.5.8

In Section 2.5.8, you have stated that station power system includes four 4160 volt buses, four 2400 volt buses, and several 480 volt load centers and 480 volt motor control centers. The subsystems are 4160 volts, 2400 volts, and 480 volts. Provide your justification of not including 120/208 volt ac, 120 volt ac (uninterruptible power), 125 volt dc, and 24 volt dc.

NMC Response to NRC RAI 2.5.8

As discussed in LRA Section 2.3.3.6, on page 2-103, the 125 volt vital DC and 120 volt preferred AC subsystems are part of the Emergency Power System (EPS). Palisades does not have a 24 volt DC system.

Enclosure 2
NMC Responses to NRC Requests for Additional Information (ML052980038)
dated October 24, 2005

RAI 2.5.9-1

In Interim Staff Guidance-2 (ISG-2), the staff has determined that the plant system portion of the offsite power system that is used to connect the plant to the offsite power source should be included within the scope of the rule. This path typically includes the switchyard circuit breakers that connects to the offsite system power transformers (startup transformers), the transformer itself. In Section 2.5.9, you have provided license renewal boundaries of the switchyard. They included 345 kV Bus F, motor operated disconnect to the safeguard transformer and 345 kV Bus R and motor operated disconnect to the startup transformers.

- (a) Provide justification of not including the switchyard circuit breakers.
- (b) The 345 kV Bus F and R are not in scope for LR per Palisades Substation per drawing (LR-WD-1421-31). Clarify this discrepancy.
- (c) Revise the switchyard system function listing (SWY-01 to SWY-05) as appropriate.

NMC Response to NRC RAI 2.5.9-1

As discussed in the NMC letter to the NRC dated August 27, 2005 (ML052440284), Palisades' scoping for Station Blackout meets the guidance of ISG-2.

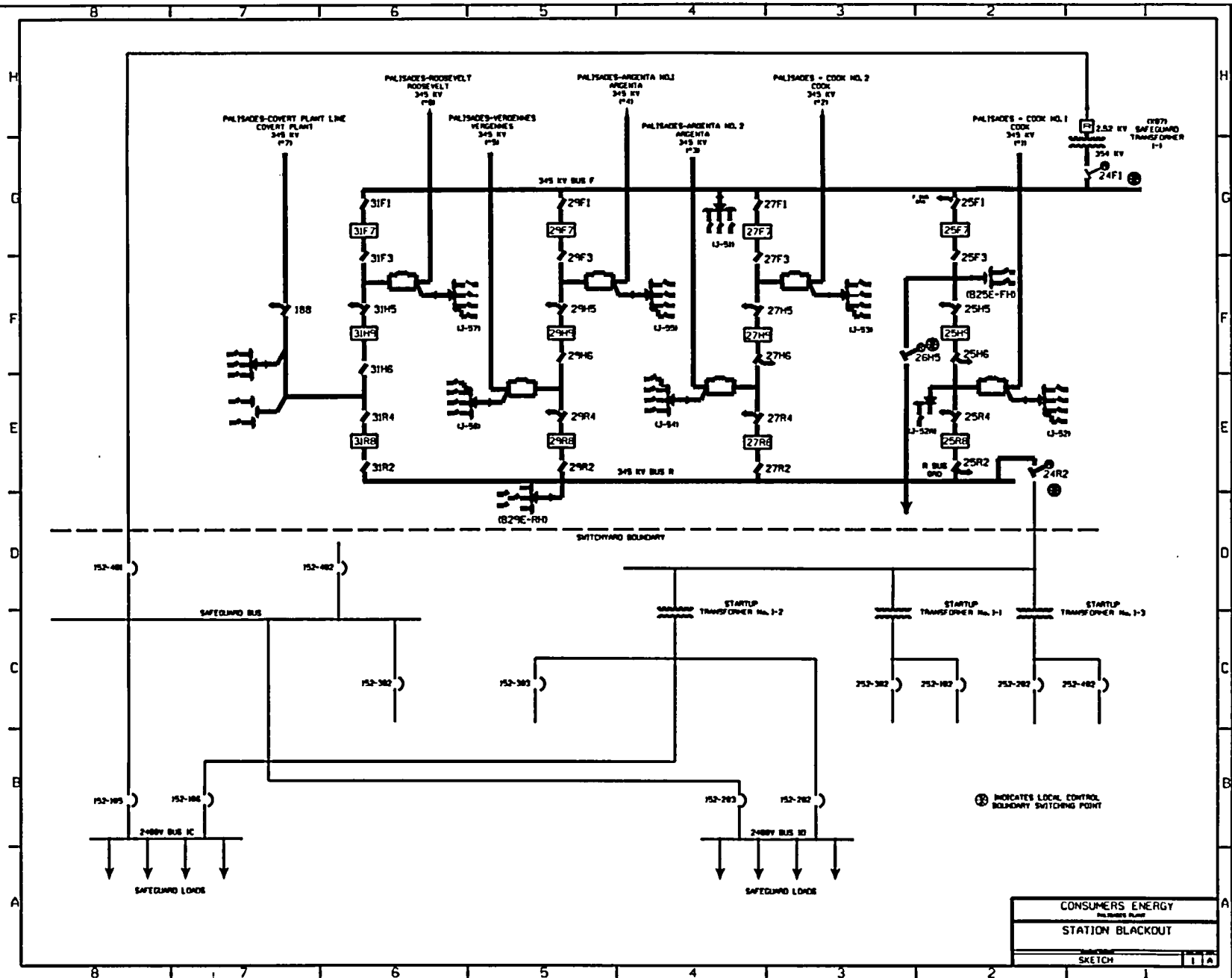
The Palisades plant electrical distribution system connects to offsite power from the transmission system through several breakers that are individually operated to supply the desired plant bus(es). On the switchyard supply sides of these breakers is a transformer (Safeguard Transformer 1-1 or Startup Transformer 1-2) to step down the 345KV transmission system voltage to the 2400 VAC needed to supply the desired plant AC bus. The final connections between the primary sides of the transformers and the Palisades Switchyard F or R Buses are made via motor operated disconnects. The plant electrical distribution system is connected to or isolated from the transmission system with the breakers on the secondary (2400 VAC) side of the transformers. The motor operated disconnects on the primary sides are always closed unless they are deliberately opened (by local or remote manual operation) for maintenance; they are not operated to interrupt offsite power from, or restore offsite power to, plant systems. As shown on the Palisades drawings LR-WD-1421-31 and LR-WD-950 Sheet A, referenced in the LRA, these plant breakers are in scope for license renewal. In addition, the drawings also show that the upstream transformers and the motor operated disconnects have been included in scope. The transmission system and switchyard, including switchyard buses F and R which are used to interconnect the seven 345KV transmission lines that terminate in the switchyard, are not plant systems, and are not in scope of license renewal. The Palisades main generator output to the transmission system that connects between switchyard breakers 25F7 and 25H9, is also not in scope since backfeeding via that line is not credited for SBO recovery.

A simplified sketch of information extracted from LR-WD-1421-31 and LR-WD-950-A is included below to illustrate the boundary between the transmission system (including switchyard F and R buses) and the plant electrical systems. The transmission system is shown in black, and the two plant system connections from the transmission system in the switchyard to the plant electrical distribution buses, which are in scope of license renewal, are shown in red.

THIS DRAWING IS COLOR
CODED FOR LICENSE
RENEWAL.

BLACK=TRANSMISSION SYSTEM
RED=STATION BLACKOUT

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Enclosure 2
NMC Responses to NRC Requests for Additional Information (ML052980038)
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NMC Responses to NRC Requests for Additional Information (ML052980038)
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RAI 2.5.9-2

The staff understands that dc power is required for motor operated disconnect (MOD). Provide your justification of not including components (battery, cables and connections) associated with MOD in-scope of license renewal.

NMC Response to NRC RAI 2.5.9-2

As noted in the NMC response to RAI 2.5-1, in a letter dated August 27, 2005, "The motor operated disconnects are normally closed and can be operated remotely or manually." For an SBO event recovery, the motor operated disconnects would not have to be operated. As discussed in the response to RAI 2.5.9-1 above, the connection of the transmission system with the plant electrical distribution systems are made through circuit breakers. However, even if MOD operation were desired because of some abnormal condition (e.g., if the SBO occurred with a transformer out of service for maintenance), the MOD can be manually operated in accordance with plant procedures. Therefore, battery cables and connections for the MODs are not required for MOD operation, so they do not meet any license renewal scoping criteria, and are not included in scope.

ENCLOSURE 3

Supplemental Information for Previous NMC Responses to RAIs 2.1-1, 3.5.2-2, 2.3.3.4-2, 2.3.3.10-7, 3.1-1, 2.3.4-1, B2.1.20-1(b), B2.1.20-1(c), and B2.1.20-2(b)

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ENCLOSURE 3

Supplemental Information for Previous NMC Responses to RAIs 2.1-1, 3.5.2-2, 2.3.3.4-2, 2.3.3.10-7, 3.1-1, 2.3.4-1, B2.1.20-1(b), B2.1.20-1(c), and B2.1.20-2(b)

Supplement to RAI 2.1-1 Response Provided in NMC Letter Dated August 27, 2005

In RAI 2.1-1, contained in a letter dated July 27, 2005, the NRC requested, in part, a technical basis for establishing the point where buried piping enters the ground as an adequate end point for determining piping within the scope of license renewal. NMC responded to RAI 2.1-1 in a letter dated August 27, 2005. The NMC response included the following discussion:

Use of the point of entry of piping into the ground as an anchor point is common practice in stress analysis modeling in the industry. Piping is typically terminated at the point of entry into the ground due to the stiffness contribution of the buried piping even though the buried piping is not included in the analysis model. Given that the non-safety attached to safety piping in question is only in scope for its structural function, and not a pressure boundary function, any degradation of the buried portion of piping would make itself evident via leakage (leak before break) before any significant loss of structural integrity occurs. In addition, piping typically penetrates the ground through a grouted penetration which will provide the requisite restraint regardless of the condition of buried portion of the piping. This is supported by current Palisades Plant piping analysis guidance that states, "The stress analysis model, when possible, will represent a piping system bounded by full translation and rotational restraints (6 DOF restraints). These generally are equipment connections, penetrations and structural anchors. Piping going underground is typically represented as an anchor even though that assumption likely overstates stiffness."

In a subsequent discussion the NRC staff questioned the acceptability of this position for license renewal since it differed from the guidance in NEI 95-10. NMC agreed to provide a revised response to resolve the NRC concern.

Accordingly, this paragraph of the NMC response is hereby revised in its entirety to read as follows:

"Use of the point of entry of piping into the ground as an anchor point is common practice in piping stress analysis modeling. Piping analysis is typically terminated at the point of entry into the ground due to the stiffness contribution of the buried piping, even though the buried piping is not included in the analysis model. However, to remain consistent with NRC accepted guidance provided in NEI 95-10, Revision 6, Appendix F, Palisades has revised its scoping termination boundaries for in-scope piping that enters the ground. For such piping, unless an actual or equivalent anchor exists at the point of entry into the ground, then the underground portion of that piping will be considered in scope up to the point where such piping exits the ground. The only underground piping brought into scope by this change were in the Demineralized Water System (increases quantity of in-scope underground piping) and the Radwaste System (adds new underground piping).

ENCLOSURE 3

Supplemental Information for Previous NMC Responses to RAIs 2.1-1, 3.5.2-2, 2.3.3.4-2, 2.3.3.10-7, 3.1-1, 2.3.4-1, B2.1.20-1(b), B2.1.20-1(c), and B2.1.20-2(b)

To incorporate the additional piping brought into scope because of this methodology change, the following revisions to the LRA are made:

In LRA Table 3.3.2-11, on page 3-176, for line item "Pipe & Fittings" with "Stainless Steel" material, add the additional line item with "Soil (Ext)" for Environment, "Loss of Material" for AERM, "Buried Services Corrosion Monitoring Program" for Aging Management Program, [None cited] for NUREG-1801 Volume 2 Line Item, [None cited] for Table 1 Item, and Standard Note "G".

In LRA Table 3.3.2-11, on page 3-176, for line item "Pipe & Fittings" with "Carbon Steel" material, add the additional line item of "Soil (Ext)" for Environment, "Loss of Material" for AERM, "Buried Services Corrosion Monitoring Program" for Aging Management Program, "VII.C1.1-b" for NUREG-1801 Volume 2 Line Item, "3.3.1-18" for Table 1 Item, and Standard Note "A"

In LRA Section 3.3.2.1.11, on page 3-95, under "Environment," add a new bullet of "Soil (Ext)".

In LRA Section 3.3.2.1.11, on page 3-96, under "Aging Management Programs," add a new bullet of "Buried Services Corrosion Monitoring Program".

ENCLOSURE 3

Supplemental Information for Previous NMC Responses to RAIs 2.1-1, 3.5.2-2, 2.3.3.4-2, 2.3.3.10-7, 3.1-1, 2.3.4-1, B2.1.20-1(b), B2.1.20-1(c), and B2.1.20-2(b)

Supplement to RAI 3.5.2-2 Response Provided in NMC Letter Dated September 23, 2005

In RAI 3.5.2-2, contained in a letter dated August 23, 2005, the NRC requested, in part, a justification why some observed conditions related to the spent fuel racks should not be considered aging effects, and why a referenced test report should not be viewed as a TLAA. NMC responded to RAI 3.5.2-2 in a letter dated September 23, 2005.

In a subsequent discussion with the NRC staff, NMC agreed to supplement the previous response. Accordingly, the following information is hereby added to the end of the NMC response to RAI 3.5.2-2 provided in the letter dated September 23, 2005:

"C. In addition to the above, margin for any minor degradation of neutron absorption capability exists since the criticality analysis for the Palisades spent fuel racks in question (manufactured by NUS) includes conservatism. This margin comes from the fact that the purchase specification for Boron 10 (B10) areal density in the rack required a 0.0959 grams/cm² value whereas the criticality analysis credits only 90% of that B10 density. Additionally, the analysis assumptions for each B₄C absorber panel were slightly narrower and thinner than design (assumed width was 0.1" less and the panel thickness 0.02" thinner), thus providing additional boron areal density margin in the analysis. In addition, the criticality analysis currently assumes the spent fuel pool water is unborated.

To date, Palisades has not performed neutron absorption ("blackness") testing of the NUS stainless steel clad Boron Carbide (B₄C) fuel racks. As discussed in the original RAI response, this testing was not considered necessary based on the Carborundum Test Report that qualified the neutron absorption capability for a fluence value of 10E11 rads gamma radiation to ensure the physical and mechanical properties are maintained "...for a period of time in excess of the designed original life of the reactor facility." Also discussed in the original response is that Palisades has information from another facility with a similar rack design using B₄C sealed between stainless steel plates and vented. This facility has been performing test coupon surveillance of B₄C for 23 years in a harsher environment (raw B₄C plates exposed to the spent fuel pool without stainless steel sheathing) and in a higher radiation field near newer fuel bundles. The results of that testing has shown no degradation in neutron absorbing ability over the last twenty-three years, which is consistent with and provides further validation of the original Carborundum testing results.

However, to further validate that the NUS racks have no aging effects requiring management and will remain acceptable for the extended period of operation, NMC will perform a neutron absorption ("blackness") test of selected cells in the NUS spent fuel racks prior to March 24, 2011, to validate that there is no significant degradation of the neutron absorption capability. An additional test will be performed within the first 10 years following the start of the period of extended operation. If degradation is identified in either test, an evaluation of the condition will be performed under the NMC Corrective Action Program. This evaluation will consider the potential need for additional or more frequent testing if applicable."

ENCLOSURE 3

Supplemental Information for Previous NMC Responses to RAIs 2.1-1, 3.5.2-2, 2.3.3.4-2, 2.3.3.10-7, 3.1-1, 2.3.4-1, B2.1.20-1(b), B2.1.20-1(c), and B2.1.20-2(b)

Supplement to RAI 2.3.3.4-2 Response Provided in NMC Letter Dated October 21, 2005

In RAI 2.3.3.4-2, contained in a letter dated September 21, 2005, the NRC requested, in part, explanation why certain air lines and components were not in scope for license renewal. The NMC responses to items (d) and (f) stated that the subject components did not have operational safety significance and did not meet license renewal scoping criteria. In a subsequent discussion the NRC reviewer questioned the meaning of the term operational safety significance in this context. NMC agreed to provide supplemental information to clarify the use of the term.

When the RAI response explained why the specific air supply tubing and associated components referenced in the question were not in scope for license renewal, it was in the context that the components supplied by this air tubing were in scope only for reasons of seismic mounting/support only. All supports for such equipment are addressed in the civil structural area on a commodity basis. The statements that the tubing and components had no operational safety significance were intended to convey that the not-in-scope tubing and components were not required to support operation of equipment needed for safe shutdown of the plant, nor to support equipment functions credited to mitigate a regulated event. Therefore, they were not in license renewal scope for either criterion (a)(1) or (a)(3).

ENCLOSURE 3

Supplemental Information for Previous NMC Responses to RAIs 2.1-1, 3.5.2-2, 2.3.3.4-2, 2.3.3.10-7, 3.1-1, 2.3.4-1, B2.1.20-1(b), B2.1.20-1(c), and B2.1.20-2(b)

Supplement to RAI 2.3.3.10-7 Response Provided in NMC Letter Dated October 21, 2005

In RAI 2.3.3.10-7, contained in a letter dated September 21, 2005, the NRC asked, "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."

In a subsequent discussion the NRC reviewer requested clarification of the NMC response contained in the letter dated October 21, 2005. That previous response to RAI 2.3.3.10-7 is hereby revised in its entirety to incorporate the requested clarifications, as follows:

"LRA Table 2.3.3-10, Component Group "Accumulators," consists of selected nitrogen, calibration and reagent gas bottles shown on drawings LR-M-222-1, LR-M-222-2, and LR-M-224-2, that have been determined to be in scope for license renewal.

These accumulators (replaceable gas bottles) are in scope for license renewal. However, because they are replaced after use, they are considered consumables and are screened out as not requiring aging management review in accordance with NEI 95-10. There are no components in the group "Accumulators" in Table 2.3.3-10 that require aging management review. Therefore, component type "Accumulators" need not have been listed in either Table 2.3.3-10 or Table 3.3.2-10. Table 2.3.3-10 only lists SSC which are in scope and subject to aging management review. Table 3.3.2-10 provides the results of aging management reviews that have been completed, and does not include in-scope component types which did not require aging management review. 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."

ENCLOSURE 3

Supplemental Information for Previous NMC Responses to RAIs 2.1-1, 3.5.2-2, 2.3.3.4-2, 2.3.3.10-7, 3.1-1, 2.3.4-1, B2.1.20-1(b), B2.1.20-1(c), and B2.1.20-2(b)

Supplement to RAI 3.1-1 Response Provided in NMC Letter Dated July 1, 2005, Concerning Thermal Sleeves

In RAI 3.1-1, contained in a letter dated June 3, 2005, the NRC requested information about how thermal sleeves would be managed. NMC responded to RAI 3.1-1 in a letter dated July 1, 2005.

In a subsequent discussion the NRC staff raised follow up questions about the management of thermal sleeves, and NMC agreed to provide supplemental information to resolve the NRC concern. This supplemental information has been incorporated into a revised response to RAI 3.1-1. Accordingly, the NMC response to RAI 3.1-1 in the letter dated July 1, 2005, is revised in its entirety to read as follows:

Thermal sleeves located within the Primary Coolant System will be managed for loss of material by the Water Chemistry Program. This is consistent with NUREG-1801 (GALL), Revision 1, Line item IV.C2-15. Accordingly, the following items in the LRA are revised:

In LRA Table 3.1.2-1, on page 3-43, component "Stainless Steel Thermal Sleeves" with environment "Treated Water (Ext)" is revised to delete the Aging Effect Requiring Management (AERM), "Cracking," including the associated entries for Aging Management Program, NUREG-1801 Volume 2 and Table 1 line items, and Notes. It is replaced with AERM "Loss of Material" managed by the Water Chemistry Program, aligned with 2001 GALL Volume 2 line item "IV.C2.5-f," Table 1 Item "3.1.1-1," with Notes "H, 125."

On page 3-63 a new plant specific note 125 is added to read as follows: "Line item is reconciled to GALL Revision 1, September 2005, with Volume 2 Line Item "IV.C2-15," Table 1 Item "1-83," and Note "A."

In LRA Table 3.1.2-1, on page 3-43, for component "Stainless Steel Thermal Sleeves", the "Treated Water (Int)" line item is deleted in its entirety.

In LRA Table 3.1.2-1, on page 3-37, component "Alloy 600 Thermal Sleeves" is revised to delete "Cracking" as an AERM, including the associated AMPs, NUREG 1801 line items and notes. They are replaced with AERM "Loss of Material," Aging Management Program "Water Chemistry Program," NUREG-1801 Volume 2 Line Item "IV.C2.5-f," Table 1 Item "3.1.1-1," and Notes "H, 125."

Thermal sleeves associated with the secondary side of the Replacement Steam Generators are managed by the Water Chemistry and Flow Accelerated Corrosion Programs. In LRA Table 3.1.2-4 on page 3-58, the AERM and the programs credited for managing aging are included as part of the line item for component type "Feedwater Inlet Nozzles and Thermal Sleeves". The "Containment Air (Ext)" environment applies to the external surface of the Feedwater Inlet Nozzles; these nozzles are managed for loss of material due to boric acid corrosion with the Boric Acid Corrosion Program. The environment "Treated Water (Int)" applies to the internal surfaces of the nozzles, and both the

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Supplemental Information for Previous NMC Responses to RAIs 2.1-1, 3.5.2-2, 2.3.3.4-2, 2.3.3.10-7, 3.1-1, 2.3.4-1, B2.1.20-1(b), B2.1.20-1(c), and B2.1.20-2(b)

internal and external surfaces of the thermal sleeves. Loss of Material due to general corrosion of the Feedwater Inlet Nozzles and Thermal Sleeves will be age managed by the Water Chemistry Program and ASME Section XI Program. Loss of Material due to Flow Accelerated Corrosion of the Feedwater Inlet Nozzles and Thermal Sleeves will be age managed by the Flow Accelerated Corrosion Program. Although the thermal sleeves are inaccessible for direct inspection, the results of the Inservice Inspection program inspections and the Flow Accelerated Corrosion program inspections of the feedwater inlet nozzles are representative of the condition of the thermal sleeves, and are sufficient to manage any potential aging effects.

Note that this revised RAI response also supersedes the supplemental information submitted for NRC Question Numbers 92 and 93 in the letter dated August 27, 2005.

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Supplemental Information for Previous NMC Responses to RAIs 2.1-1, 3.5.2-2, 2.3.3.4-2, 2.3.3.10-7, 3.1-1, 2.3.4-1, B2.1.20-1(b), B2.1.20-1(c), and B2.1.20-2(b)

Supplement to RAI 2.3.4-1 Response Provided in NMC Letter Dated July 1, 2005, Concerning Steam Generator Feedwater Inlet Ring

In RAI 2.3.4-1, contained in a letter dated June 3, 2005, the NRC requested NMC's basis for not including the feedwater rings in scope of license renewal. NMC responded to RAI 2.3.4-1 in a letter dated July 1, 2005.

In a subsequent discussion the NRC staff raised follow up questions about the scoping of the feedwater inlet ring, and NMC agreed to provide supplemental information to resolve the NRC concern. This supplemental information has been incorporated into a revised response to RAI 2.3.4-1. Accordingly, the NMC response to RAI 2.3.4-1 in the letter dated July 1, 2005, is revised in its entirety to read as follows:

"NMC has added the Palisades steam generator feedwater rings into the scope of license renewal under criterion (a)(2). Conforming changes are made to the LRA as follows:

In LRA Table 2.3.1-4 on page 2-68, a new Subcomponent "Feedwater Ring" is hereby added, with the Intended Function of "Structural Support for Safety Related."

In LRA Table 3.1.2-4 on page 3-61, a new line item for Component Type "Feedwater Ring" is hereby added with Intended Function, Material, Environment, and Aging Effect Requiring Management, of "Structural Support for Safety Related," "Carbon Steel," Treated Water (Int and Ext)," and "Loss of Material," respectively. For this aging effect two separate sets of entries for Aging Management Program, NUREG-1801 Volume 2 Line Item, Table 1 Item and Notes are, "Steam Generator Tube Integrity Program," "IV.D1.3-a," 3.1.1-21," and "A, 126;" and "Water Chemistry Program," IV.D1.3-a," 3.1.1-21," and "A, 126," respectively.

On page 3-63, new plant-specific note 126 is added to read, "The Steam Generator Tube Integrity Program is credited for managing wall thinning/flow-accelerated corrosion. Palisades also credits the Water Chemistry Program for other loss of material mechanisms."

The feedwater rings are managed for wall thinning/flow-accelerated corrosion by the Water Chemistry Program and the Steam Generator Tube Integrity Program (SGTIP). The Steam Generator Tube Integrity Program includes secondary side inspections in the area of the feedwater rings for degradation such as the following:

- Feedwater Distribution Box - For signs of broken or damaged supports, thermal liner, gusset welded attachments, and outlet nozzles.
- Entire Length of Feedwater Ring - For signs of broken, damaged, or eroded J-Nozzles; broken, loose, or missing feedwater ring U-bolts and supports.

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Supplemental Information for Previous NMC Responses to RAIs 2.1-1, 3.5.2-2, 2.3.3.4-2, 2.3.3.10-7, 3.1-1, 2.3.4-1, B2.1.20-1(b), B2.1.20-1(c), and B2.1.20-2(b)

- Auxiliary Feedwater Inlet Nozzle and Piping - For signs of damaged, eroded, or broken piping.
- J-Nozzle Internal Video Probe - For signs of broken or eroded J-Nozzle to feedwater weld joint."

Note that this revised RAI response also supersedes the supplemental information submitted for NRC Question Number 11 in the letter dated August 27, 2005.

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Supplemental Information for Previous NMC Responses to RAIs 2.1-1, 3.5.2-2, 2.3.3.4-2, 2.3.3.10-7, 3.1-1, 2.3.4-1, B2.1.20-1(b), B2.1.20-1(c), and B2.1.20-2(b)

Supplement to RAI B2.1.20-1(b), B2.1.20-1(c), and B2.1.20-2(b) Responses Provided in NMC Letter Dated July 25, 2005, Concerning Elastomers

In RAIs B2.1.20-1(b), B2.1.20-1(c), and B2.1.20-2(b), contained in a letter dated June 22, 2005, the NRC requested information about elastomers contained within the Service Water System (SWS) and Heating, Ventilating and Air Conditioning (HVAC) Systems. NMC responded to these RAIs in a letter dated July 25, 2005.

In a subsequent discussion the NRC staff raised follow up questions about the scoping of elastomers, and NMC agreed to provide supplemental information to resolve the NRC concern. This supplemental information has been incorporated into revised responses. Accordingly, the NMC responses to RAIs B2.1.20-1(b), B2.1.20-1(c), and B2.1.20-2(b), in the letter dated July 25, 2005, are revised in their entirety to read as follows:

Revised Response to RAI B2.1.20-1(c)

In RAI B2.1.20-1(c), the NRC asked, "Considering the limited shelf life and service life of elastomers for the specified environment, the applicant is requested to clarify if elastomers meet the definition of long-lived components within scope of license renewal."

The NMC response to RAI B2.1.20-1(c) is hereby revised in its entirety to read as follows:

"Mechanical elastomers, including rubber, are included the LRA for the Heating, Ventilation and Air Conditioning (HVAC) System (LRA Tables 2.3.3-9, 3.3.2-9 and section 3.3.2.1.9) and the Service Water System (Table 3.3.2-12 and Section 3.3.2.1.12).

The elastomers listed in the Heating, Ventilation and Air Conditioning System are long lived and require aging management as described in LRA Table 2.3.3-9, Table 3.3.2-9, Section 3.3.2.1.9, and Section 3.3.2.2.2. This is consistent with GALL sections VIIF1, F2, F3, and F4.

NMC has determined that the elastomers in the Service Water System (SWS) AMR tables of the LRA are not long lived components that require aging management because they are replaced on a periodic basis. Therefore, there are no elastomers in the SWS system that are required to be managed by an Aging Management Program, and the "Pipe & Fittings" entry on page 3-183 for the material "Rubber" is deleted along with the associated Aging Management Program, NUREG-1801 volume 2 Line Item, Table 1 Item, and Notes. In addition, in Section 3.3.2.1.12 on page 3-96, the bullet "Rubber" under "Materials" is deleted. Additionally, in Section 3.3.2.2.2 on page 3-103, the last two sentences of the second paragraph, which refer to management of elastomers in systems other than HVAC, are hereby deleted."

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Supplemental Information for Previous NMC Responses to RAIs 2.1-1, 3.5.2-2, 2.3.3.4-2, 2.3.3.10-7, 3.1-1, 2.3.4-1, B2.1.20-1(b), B2.1.20-1(c), and B2.1.20-2(b)

Revised Response to RAI B2.1.20-1(b)

In RAI B2.1.20-1(b), the NRC asked, "The LRA AMR Tables credit the Systems Monitoring Program for managing external surfaces of elastomers, but elastomers are not specifically addressed in the Systems Monitoring program. The applicant is requested to clarify if elastomers are within scope of the Systems Monitoring Program and, if so, consider the unique aging degradation characteristics of elastomers in the specified environment and include a discussion of elastomers within each element of the program."

The NMC response to RAI B2.1.20-1(b) is hereby revised in its entirety to read as follows:

"As described in the response to RAI B2.1.20-1(c), the HVAC system elastomers will be age managed using the System Monitoring Program for external surfaces. The System Monitoring Program description in LRA Section B2.1.20 is hereby revised to clarify the inclusion of elastomers, including their unique aging degradation characteristics, as follows:

On page B-147, under "Scope of Program," the following is added to the end of the second paragraph: "This walk down also includes elastomers. Visual inspections will detect loss of material due to abrasion/wear and cracking resulting from changes in material properties such as loss of flexibility and embrittlement. Physical manipulation during the visual inspection will verify flexibility and lack of hardening of the elastomers."

On page B-148, under "Parameters Monitored, Inspected, and/or Tested," the following is added to the end of the first paragraph: "For elastomers, visual inspections will detect loss of material due to abrasion/wear and cracking resulting from changes in material properties such as loss of flexibility and embrittlement."

On page B-149, under "Detection of Aging Effects," the following is added after the second sentence of the first paragraph: "For elastomers, visual inspections will detect loss of material due to abrasion/wear and cracking resulting from changes in material properties such as loss of flexibility and embrittlement. Physical manipulation during the visual inspection will verify flexibility and lack of hardening of the elastomers."

On page B-150, under "Acceptance Criteria," the following is added after the first sentence of the first paragraph: "Degradation of elastomers such as abrasion/wear, cracking, loss of flexibility, embrittlement and hardening will be entered into the Corrective Action Program."

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Supplemental Information for Previous NMC Responses to RAIs 2.1-1, 3.5.2-2, 2.3.3.4-2, 2.3.3.10-7, 3.1-1, 2.3.4-1, B2.1.20-1(b), B2.1.20-1(c), and B2.1.20-2(b)

Revised Response to RAI B2.1.20-2(b)

In RAI B2.1.20-2(b), the NRC asked, "LRA AMR Tables credit the Systems Monitoring Program for managing change in material properties and cracking for elastomers used inside/outside containment. The applicant is requested to clarify how visual inspections are performed to detect changes in material properties and identify if other methods such as hardness testing or physical manipulation in combination with visual inspections are appropriate."

The NMC response to RAI B2.1.20-2(b) is hereby revised in its entirety to read as follows:

"Visual inspections will detect cracking resulting from changes in material properties such as loss of flexibility and embrittlement. Physical manipulation during the visual inspection will verify flexibility of the elastomers."