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Prairie Island Nuclear Generating Plant Units 1 and 2
Dockets 50-282 and 50-306
License Nos. DPR-42 and DPR-60

Responses to NRC Requests for Additional Information Dated March 31, 2009 and Follow Up Questions Regarding Application for Renewed Operating Licenses

By letter dated April 11, 2008, Northern States Power Company, a Minnesota Corporation, (NSPM) submitted an Application for Renewed Operating Licenses (LRA) for the Prairie Island Nuclear Generating Plant (PINGP) Units 1 and 2. In a letter dated November 5, 2008, the NRC transmitted Request for Additional Information (RAI) AMP-B2.1.38-2 regarding that application. NSPM responded to that RAI in a letter dated December 5, 2008, and provided additional information in a public meeting on March 2, 2009. Subsequently, in a letter dated March 31, 2009, the NRC provided a follow up RAI related to the previous response and the meeting. Enclosure 1 of this letter provides the NSPM response to that follow up RAI.

In the letter dated March 31, 2009, the NRC also transmitted RAI 3.3.2-8-1 related to Natural Rubber in Fuel Oil and Lubricating Oil. Enclosure 2 provides the NSPM response to RAI 3.3.2-8-1.

In a conference call on March 30, 2009, the NRC raised follow up questions about the LRA and certain previous RAI responses. Enclosure 3 of this letter provides a summary of each follow up question followed by the NSPM response.

Enclosure 4 provides the list of License Renewal Commitments, updated to reflect NSPM correspondence to date.

If there are any questions or if additional information is needed, please contact Mr. Eugene Eckholt, License Renewal Project Manager.

Summary of Commitments

This letter contains three new License Renewal commitments.

New License Renewal Commitment Number 41 reads as follows:

During the first refueling outage following refueling cavity leak repairs in each Unit (scheduled for refueling outages 1R26 and 2R26), concrete will be removed from the sump C pit to expose an area of the containment vessel bottom head. Visual examination and ultrasonic thickness measurement will be performed on the portions of the containment vessels exposed by the excavations. An assessment of the condition of exposed concrete and rebar will also be performed. Degradation observed in the exposed containment vessel, concrete or rebar will be entered into the Corrective Action Program and evaluated for impact on structural integrity and identification of additional actions that may be warranted.

New License Renewal Commitment Number 42 reads as follows:

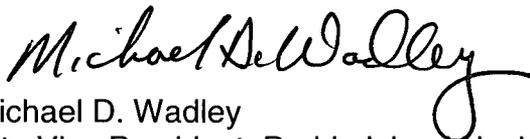
During the two consecutive refueling outages following refueling cavity leak repairs in each Unit (scheduled for refueling outages 1R26 and 2R26), visual inspections will be performed of the areas where reactor cavity leakage had been observed previously to confirm that leakage has been resolved. The inspection results will be documented. If refueling cavity leakage is again identified, the issue will be entered into the Corrective Action Program and evaluated for identification of additional actions to mitigate leakage and monitor the condition of the containment vessel and internal structures.

New License Renewal Commitment Number 43 reads as follows:

Preventive maintenance requirements will be implemented to require periodic replacement of rubber flexible hoses in the Diesel Generators and Support System that are exposed to fuel oil or lubricating oil internal environments.

These actions will be completed in Unit 1 by August 9, 2013, and in Unit 2 by October 29, 2014, the dates on which the Units will enter the Period of Extended Operation.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on April 6, 2009.



Michael D. Wadley
Site Vice President, Prairie Island Nuclear Generating Plant Units 1 and 2
Northern States Power Company - Minnesota

Enclosures (4)

cc:

Administrator, Region III, USNRC
License Renewal Project Manager, Prairie Island, USNRC
Resident Inspector, Prairie Island, USNRC
Prairie Island Indian Community ATTN: Phil Mahowald
Minnesota Department of Commerce

Enclosure 1
NSPM Response to Follow Up RAI B2.1.38

Follow Up RAI B2.1.38

In letter L-PI-08-098, dated December 5, 2008, "Responses to NRC Requests for Additional Information Dated November 5, 2008 Regarding Application for Renewed Operating Licenses," the applicant submitted responses to the staff's RAIs. In addition, the applicant provided information during a public meeting on March 2, 2009. The staff has reviewed the information provided, but needs additional information to complete its review. Please provide the following information to supplement the initial response:

- a. Due to the leakage path of borated water along the bottom of the steel containment vessel, the vessel/concrete interface may remain wetted after refueling outages. During the public meeting, the applicant discussed its plan to remove concrete from sump C, below the reactor vessel, to physically assess the condition of the steel vessel, concrete, and rebar. Please provide more detailed information about this plan including actions and schedule. Discuss what other actions will be taken, prior to the period of extended operation, to adequately assess the condition of the steel vessel.
- b. In the absence of a commitment to fix the leakage prior to the period of extended operation, please explain how the IWE program, or a plant-specific program, will address the leakage and will ensure that these aging effects will be effectively managed, especially in the inaccessible regions, during the period of extended operation.
- c. Provide the chemical properties of the "white deposits" found on the concrete surfaces and address the possibility of calcium hydroxide $\text{Ca}(\text{OH})_2$ leaching from concrete.

NSPM Response to Follow Up RAI B2.1.38

Response to Part a

Leak repairs for the Unit 1 refueling cavity are planned for refueling outage 1R26 (fall 2009). Leak repairs for the Unit 2 refueling cavity are planned for refueling outage 2R26 (spring 2010). During the next refueling outages following leak repairs (projected to be spring 2011 and spring 2012, respectively), removal of concrete from each sump C pit will be performed to expose an area near the center of the inside surface of the containment vessel bottom head of each Unit. Site drawings indicate that there is approximately a 16 inch thickness of reinforced concrete between the bottom of the sump C pit and the containment vessel. The method of concrete removal has not been determined, but will likely include core drilling or a similar process followed by manual chipping to avoid damage to the containment vessel. The concrete will be removed primarily to allow visual and UT thickness examination of a sample location in each containment vessel bottom head. A secondary purpose is to provide access for an attempt to evacuate residual water that may be present after leak mitigation.

A sample of the concrete excavated from close proximity to each containment vessel will be qualitatively assessed for strength (e.g., does not crush easily, no signs of

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NSPM Response to Follow Up RAI B2.1.38

porosity with fine aggregate particles easily dislodged, etc.) and will also be chemically analyzed for changes caused by exposure to borated water leakage. Water that seeps into the exploratory opening, if any, will be sampled and analyzed for pH and ionic species. Reinforcing bar exposed by the excavation will be visually examined for indications of degradation. Visual and UT examinations will be performed on the portion of each containment vessel exposed by the excavation. Degradation observed in the exposed containment vessel, concrete or rebar will be entered into the Corrective Action Program and evaluated for impact on structural integrity and identification of additional actions (e.g., inspection of additional locations) that may be warranted.

In addition to the physical actions described above, the following evaluations are planned:

- complete an evaluation of potential degradation to date of the containment vessel, concrete and reinforcing steel
- perform a margin assessment of the containment vessel and interior structures, including the area around the transfer tube, to determine allowable degradation

NSPM expects that the refueling cavity leak repairs in outages 1R26 and 2R26 will be successful. This will be confirmed during the two refueling outages following the repairs in each Unit by specifically inspecting the areas where reactor cavity leakage had been observed previously. The inspection results will be documented. During subsequent outages, continued monitoring for leakage and degradation will be performed through the periodic examinations of the containment vessels and interior structures performed in accordance with the ASME Section XI, Subsection IWE Program and the Structures Monitoring Program.

Following the leak repairs, if continued monitoring again identifies active refueling cavity leakage, further action will be taken as described in Part b below.

Response to Part b

As discussed in Part a above, NSPM expects to stop the refueling cavity leakage. However, if the repairs do not completely stop the leakage, NSPM will continue to take actions to eliminate the leakage and will continue to monitor for degradation.

Any additional actions to be taken would be determined in accordance with the Corrective Action Program evaluation of the specific locations and quantities of observed leakage. Actions may include removal of additional grout or concrete, visual and UT thickness examinations from the interior of the containment vessel at exposed locations, and UT thickness examinations from the annulus around the exterior of the containment vessel. Examinations may be repeated at intervals commensurate with the safety significance of any identified degradation and the extent of residual leakage, if any. Actions may also include testing of concrete and rebar in areas judged to have the potential for unacceptable degradation from borated water leakage.

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NSPM Response to Follow Up RAI B2.1.38

Monitoring of the containment vessel and interior structures will be performed, at a minimum, in accordance with the ASME Section XI, Subsection IWE Program and the Structures Monitoring Program. Program requirements will be augmented as appropriate for the specific leakage or degradation observed, based on good engineering practice.

As discussed in LRA Section B2.1.4, the ASME Section XI, Subsection IWE Program provides for condition monitoring of Class MC pressure-retaining components by performing periodic visual examinations (general, VT-3, VT-1) of the Class MC components and their related items. Visual (VT-1) or volumetric examinations, as applicable, are performed on components that require augmented examination. Indications of leakage that affects Class MC pressure-retaining components would be documented in the Corrective Action Program for evaluation and assignment of appropriate corrective actions. When conditions are identified in accessible areas that could indicate the presence of, or result in, degradation in inaccessible areas, the program requires an evaluation of the acceptability of affected inaccessible areas. Such evaluations of inaccessible areas are required to be reported to the NRC in the ISI summary report. In accordance with IWA-6000, the information to be reported includes a description of the type and estimated extent of degradation, and conditions that led to degradation; an evaluation of each affected area and the result of the evaluation; and a description of the necessary actions.

As discussed in LRA Section B2.1.38, the Structures Monitoring Program is a condition monitoring program that manages aging effects in structures, supports and structural components within the scope of License Renewal. This includes containment interior structures. The program performs periodic visual inspections to monitor the condition of structures, supports and components with respect to established acceptance criteria to ensure that degraded conditions are identified, evaluated, and, when necessary, corrected such that there is no loss of intended function. Inspections performed by the Structures Monitoring Program would be expected to identify conditions indicative of potential concrete or rebar degradation, including signs of leakage, as well as cracks, calcium deposits, spalling, and rust stains.

Response to Part c

A task has been entered into the site Corrective Action Program to collect and chemically analyze deposits in areas showing signs of leakage in each Unit's regenerative heat exchanger room and sump C, as applicable. The conditions observed for each deposit, including photographs of typical leakage areas and an estimated volume of the deposit, will be documented in the Corrective Action Program in order to qualitatively assess the extent of the affected areas. The results of the analyses will also be documented in the Corrective Action Program. Records will be available on site for NRC review.

License Renewal Commitments

The response to this RAI contains two new License Renewal Commitments to be completed prior to entry of each Unit into the Period of Extended Operation.

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NSPM Response to Follow Up RAI B2.1.38

New License Renewal Commitment Number 41 reads as follows:

During the first refueling outage following refueling cavity leak repairs in each Unit (scheduled for refueling outages 1R26 and 2R26), concrete will be removed from the sump C pit to expose an area of the containment vessel bottom head. Visual examination and ultrasonic thickness measurement will be performed on the portions of the containment vessels exposed by the excavations. An assessment of the condition of exposed concrete and rebar will also be performed. Degradation observed in the exposed containment vessel, concrete or rebar will be entered into the Corrective Action Program and evaluated for impact on structural integrity and identification of additional actions that may be warranted.

New License Renewal Commitment Number 42 reads as follows:

During the two consecutive refueling outages following refueling cavity leak repairs in each Unit (scheduled for refueling outages 1R26 and 2R26), visual inspections will be performed of the areas where reactor cavity leakage had been observed previously to confirm that leakage has been resolved. The inspection results will be documented. If refueling cavity leakage is again identified, the issue will be entered into the Corrective Action Program and evaluated for identification of additional actions to mitigate leakage and monitor the condition of the containment vessel and internal structures.

Enclosure 2
NSPM Response to RAI 3.3.2-8-1

RAI 3.3.2-8-1

Natural Rubber in Fuel Oil and Lubricating Oil

In AMR Table 3.3.2-8, there is an AMR line item for Flex Connections/Pressure Boundary/Natural Rubber/Fuel Oil (int) and Lubricating Oil (int)/none/none/ with plant specific note G, 313.

P.A. Schweitzer, "Corrosion Resistance Tables – Metals, Nonmetals, Coatings, Mortars, Plastics, Elastomers and Linings, and Fabrics," Fourth Edition, Part B, Marcel Dekker, Copyright 1995 discuss natural rubber and EPDM and states that they are not resistant to fuel oil or lubricating oil.

Please provide a justification for using natural rubber in fuel oil and lubricating oil with no aging effects and no need for an aging management program.

NSPM Response to RAI 3.3.2-8-1

During the AMR process certain rubber hoses were conservatively identified as being made of Natural Rubber when the actual materials could not be readily identified. Natural rubbers are not resistant to fuel oil or lubricating oil, and only qualified elastomers, that are resistant, are used for fuel oil or lubricating oil service. In general, the rubber flexible connections in the Diesel Generators and Support System are constructed of nitrile rubber or are lined with teflon, both of which have outstanding resistance to oils. Regardless, based on vendor recommendations, NSPM has determined that the rubber flexible hoses in the Diesel Generators and Support System that are exposed to Fuel Oil or Lubricating Oil internal environments should be periodically replaced. Therefore, these hoses are not subject to aging management review, and need not be addressed in the LRA.

Accordingly, a new License Renewal Commitment Number 43 is added to read as follows:

Preventive maintenance requirements will be implemented to require periodic replacement of rubber flexible hoses in the Diesel Generators and Support System that are exposed to fuel oil or lubricating oil internal environments.

Conforming changes are made to the LRA as follows:

In LRA Table 3.3.2-8, Auxiliary Systems – Diesel Generators and Support System – Summary of Aging Management Evaluation, on Page 3.3-156, the line items for Flex Connections / Natural Rubber / Fuel Oil (Int) and Lubricating Oil (Int), are deleted.

Additionally, the flexible connections for the lubricating oil and fuel oil lines on the diesel driven cooling water pumps were determined to be constructed from stainless steel. To address aging management review of the stainless steel flexible connections on the diesel driven cooling water pumps, the following LRA changes are made.

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NSPM Response to RAI 3.3.2-8-1

In LRA Table 3.3.2-8, Auxiliary Systems – Diesel Generators and Support System – Summary of Aging Management Evaluation, on Page 3.3-153, the following line items are added:

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Volume 2 Line Item	Table 1 Item	Notes
Flex Connections	Pressure Boundary	Stainless Steel	Fuel Oil (Int)	Loss of Material - Crevice Corrosion	Fuel Oil Chemistry Program	VII.H2-16	3.3.1-32	B
Flex Connections	Pressure Boundary	Stainless Steel	Fuel Oil (Int)	Loss of Material - Crevice Corrosion	One-Time Inspection Program	VII.H2-16	3.3.1-32	A
Flex Connections	Pressure Boundary	Stainless Steel	Fuel Oil (Int)	Loss of Material - MIC	Fuel Oil Chemistry Program	VII.H2-16	3.3.1-32	B
Flex Connections	Pressure Boundary	Stainless Steel	Fuel Oil (Int)	Loss of Material - MIC	One-Time Inspection Program	VII.H2-16	3.3.1-32	A
Flex Connections	Pressure Boundary	Stainless Steel	Fuel Oil (Int)	Loss of Material - Pitting Corrosion	Fuel Oil Chemistry Program	VII.H2-16	3.3.1-32	B
Flex Connections	Pressure Boundary	Stainless Steel	Fuel Oil (Int)	Loss of Material - Pitting Corrosion	One-Time Inspection Program	VII.H2-16	3.3.1-32	A
Flex Connections	Pressure Boundary	Stainless Steel	Lubricating Oil (Int)	Loss of Material - Crevice Corrosion	Lubricating Oil Analysis Program	VII.H2-17	3.3.1-33	A
Flex Connections	Pressure Boundary	Stainless Steel	Lubricating Oil (Int)	Loss of Material - Crevice Corrosion	One-Time Inspection Program	VII.H2-17	3.3.1-33	A
Flex Connections	Pressure Boundary	Stainless Steel	Lubricating Oil (Int)	Loss of Material - Pitting Corrosion	Lubricating Oil Analysis Program	VII.H2-17	3.3.1-33	A
Flex Connections	Pressure Boundary	Stainless Steel	Lubricating Oil (Int)	Loss of Material - Pitting Corrosion	One-Time Inspection Program	VII.H2-17	3.3.1-33	A

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NSPM Responses to NRC Follow Up Questions

B2.1.19 Fuel Oil Chemistry Program Follow Up Question

In the 12/18/08 Response to NRC RAI B2.1.19-3, NSPM provided justification for the Exception to NUREG-1801 which states that day tanks and clean fuel oil leakage collection tanks are not subject to periodic draining, cleaning, and internal inspection. The justification provided was based upon the high turnover rate for the fuel in the day tanks and the close control of the fuel oil quality in the storage tanks that comprise the sources for the day and clean leakage collection tanks. In the 3/30/09 conference call, the NRC expressed concern that no monitoring of the tank condition was being performed, and requested additional explanation as to how aging effects will be adequately managed in the day tanks and clean fuel oil collection tanks.

The diesel fuel oil day tanks and clean fuel oil leakage collection tanks are accessible for external UT examination. In order to confirm the continued effectiveness of oil quality control and to verify the absence of aging effects, one-time inspections using ultrasonic thickness measurements will be performed on selected day tanks and clean fuel oil leakage collection tanks prior to the period of extended operation as part of the One-Time Inspection Program. Specific locations to be selected include:

- An external UT on select bottom locations on four of the seven diesel fuel oil day tanks.
- An external UT on select bottom locations of one of the two D1/D2 clean fuel oil leakage collection tanks.

The inspection locations identified above are in addition to those previously listed in the NSPM Response to RAI B2.1.19-3 (12/18/08 letter).

The previous response incorrectly stated there were four Diesel Generator D1/D2 and four Diesel Generator D5/D6 fuel oil leakage collection tanks managed by the Fuel Oil Chemistry Program. However, as a result of recent plant walk downs, it has been determined that there are only two clean fuel oil leakage collection tanks, both associated with D1/D2. The Unit 1 D1/D2 Diesel Generator Clean Fuel Tanks are the only fuel oil leakage collection tanks within the scope of the Fuel Oil Chemistry Program. These Clean Fuel Tanks collect clean fuel from the injector drain headers and return the fuel to the day tank with the clean fuel return pump. The vented collection header is continuously piped from each injector to the Clean Fuel Tank. These fuel oil leakage collection tanks have a capacity of approximately 5 gallons each. These leakage tanks are evaluated in PINGP LRA Table 3.3.2-8, Auxiliary Systems – Diesel Generators and Support System – Summary of Aging Management Evaluation, on Page 3.3-179.

The six remaining fuel oil leakage collection tanks, two associated with D1/D2 and four associated with D5/D6, are contaminated fuel oil leakage collection tanks that collect drops of fuel from pump and nozzle leaks. The four D5/D6 fuel oil leakage collection tanks in turn drain to Dirty Oil Tanks which also collect floor drains from the D5/D6 Fuel Oil Day Tank and Lube Oil Tank rooms. These fuel oil leakage collection tanks and Dirty Oil Tanks are not pressurized. The tanks are periodically drained, and the

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NSPM Responses to NRC Follow Up Questions

collected fluid is disposed of as waste. Due to the potential for contamination, the internal environment for these six fuel oil leakage collection tanks and the Dirty Oil Tanks are evaluated as Raw Water. The tanks are evaluated in LRA Table 3.3.2-8, Auxiliary Systems – Diesel Generators and Support System – Summary of Aging Management Evaluation, on Page 3.3-181. Plant Specific Note 320 is applied to these line items and states, "The environment for this component is evaluated as Raw Water and is essentially waste water or a potential mixture of water and oil." Aging effects are managed by the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program.

During the review of LRA Table 3.3.2-8, it was noted that the line items for Piping / Fittings and Valve Bodies did not fully account for the piping and valves that are used for collection of dirty oil in the leakage collection tanks and are managed by the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program. An entry for Sight Glasses in a Raw Water (Int) environment has also been added. For completeness, LRA Table 3.3.2-8 is hereby revised to incorporate the appropriate line items.

In LRA Table 3.3.2-8, Auxiliary Systems – Diesel Generators and Support System – Summary of Aging Management Evaluation, the following line items are added:

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Volume 2 Line Item	Table 1 Item	Notes
Piping / Fittings	Pressure Boundary	Carbon Steel	Raw Water (Int)	Loss of Material - Crevice Corrosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-19	3.3.1-76	E, 320
Piping / Fittings	Pressure Boundary	Carbon Steel	Raw Water (Int)	Loss of Material - Galvanic Corrosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-19	3.3.1-76	E, 310, 320
Piping / Fittings	Pressure Boundary	Carbon Steel	Raw Water (Int)	Loss of Material - General Corrosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-19	3.3.1-76	E, 320
Piping / Fittings	Pressure Boundary	Carbon Steel	Raw Water (Int)	Loss of Material - MIC	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-19	3.3.1-76	E, 320
Piping / Fittings	Pressure Boundary	Carbon Steel	Raw Water (Int)	Loss of Material - Pitting Corrosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-19	3.3.1-76	E, 320

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Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Volume 2 Line Item	Table 1 Item	Notes
Piping / Fittings	Pressure Boundary	Copper Alloy	Raw Water (Int)	Loss of Material - Crevice Corrosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-9	3.3.1-81	E, 320
Piping / Fittings	Pressure Boundary	Copper Alloy	Raw Water (Int)	Loss of Material - MIC	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-9	3.3.1-81	E, 320
Piping / Fittings	Pressure Boundary	Copper Alloy	Raw Water (Int)	Loss of Material - Pitting Corrosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-9	3.3.1-81	E, 320
Piping / Fittings	Pressure Boundary	Copper Alloy	Raw Water (Int)	Loss of Material - Selective Leaching	Selective Leaching of Materials Program	VII.H2-13	3.3.1-84	B, 320
Sight Glasses	Pressure Boundary	Glass	Raw Water (Int)	None	None	VII.J-11	3.3.1-93	A, 320
Valve Bodies	Pressure Boundary	Brass	Raw Water (Int)	Loss of Material - Crevice Corrosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-9	3.3.1-81	E, 320
Valve Bodies	Pressure Boundary	Brass	Raw Water (Int)	Loss of Material - MIC	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-9	3.3.1-81	E, 320
Valve Bodies	Pressure Boundary	Brass	Raw Water (Int)	Loss of Material - Pitting Corrosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-9	3.3.1-81	E, 320
Valve Bodies	Pressure Boundary	Brass	Raw Water (Int)	Loss of Material - Selective Leaching	Selective Leaching of Materials Program	VII.H2-13	3.3.1-84	B, 320
Valve Bodies	Pressure Boundary	Bronze	Raw Water (Int)	Loss of Material - Crevice Corrosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-9	3.3.1-81	E, 320
Valve Bodies	Pressure Boundary	Bronze	Raw Water (Int)	Loss of Material - MIC	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting	VII.C1-9	3.3.1-81	E, 320

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Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Volume 2 Line Item	Table 1 Item	Notes
					Components Program			
Valve Bodies	Pressure Boundary	Bronze	Raw Water (Int)	Loss of Material - Pitting Corrosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-9	3.3.1-81	E, 320

B2.1.19 Fuel Oil Analysis Follow Up Question

In the 3/30/09 conference call, the NRC acknowledged PINGP's commitment to initiate annual testing of fuel oil for particulates, but the GALL recommends quarterly testing. The reviewer indicated that annual particulate testing may be sufficient as long as sediment and particulate testing results continue to meet acceptance standards. NSPM was requested to clarify whether the annual test frequency for particulates would be increased in the event significant sediment or particulates are detected.

As described in the Program Basis Document for the PINGP Fuel Oil Chemistry Program, when fuel oil analysis limits are not met, such as for sediment content or particulate contamination, the condition is entered into the Corrective Action Program for evaluation and assignment of corrective actions. Actions may include replacement of diesel fuel oil, more frequent sampling, use of fuel oil additives such as biocides, or tank draining, cleaning and inspection, depending on the significance of the issue and required actions to correct the condition.

LRA Section 4.7.5 Turbine Missile Analysis TLAA Follow Up Question

In the 3/30/09 conference call, the NRC questioned whether the analysis of a turbine rotor failure leading to turbine missiles is a TLAA as discussed in LRA Section 4.7.5. This section primarily references a discussion in the USAR, but the USAR does not make it clear that the analysis is part of the CLB and why it is considered a TLAA. The reviewer requested that PINGP clarify whether the issue should be classified as a TLAA. If it is concluded to be a TLAA, specific CLB information which defines the safety bases for turbine rotor failure (inspection frequency) should be provided.

When the PINGP LRA was prepared, USAR Sections 11.2.3.2, Turbine Overspeed Control, and 12.2.7.1, Probability of Damage to Safeguard Equipment from Turbine Missiles, were consulted. Section 12.2.7.1 contained a brief discussion that the probabilities of missile ejection at running speed and design overspeed meet the criteria of the SRP "... through the remaining Operating License period in 2013 [Unit 2: 2014]." Based on this statement, the analysis of turbine missiles was designated a TLAA, and a restatement of the USAR discussion was provided as a TLAA discussion in Section

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4.7.5 of the LRA. Upon further review of the reference documents underlying the USAR discussion, NSPM has concluded that the analysis of the probability of damage to safeguard equipment from turbine missiles does not meet the criteria for a TLAA, and should be removed from the LRA.

The NRC approved the analysis methodology for determining the total probability of turbine missile ejection from an overspeed condition (WCAP-11525) in conjunction with PINGP License Amendments 86 (Unit 1) and 79 (Unit 2) issued by an NRC letter dated February 7, 1989. WCAP-11525, "Probabilistic Evaluation of Reduction in Turbine Valve Test Frequency," considers the probabilities of rotor burst during design overspeed, intermediate overspeed, and destructive overspeed conditions. The total annual probability of turbine missile ejection is the sum of the annual probabilities of failure at design overspeed, intermediate overspeed, and destructive overspeed conditions. The probability of failure at design and intermediate overspeed equals the probability of turbine overspeed multiplied by the conditional probability of failure at overspeed.

The probability of turbine overspeed is a function of the reliability of the turbine control system and the turbine valves. The reliability of the control system and valves are a function of the turbine valve test interval and the design configuration. Valve operating experience is a factor in determining this probability.

The conditional probability of missile ejection given a design or intermediate overspeed condition is based on consideration of damage mechanisms (e.g., SCC and fatigue) and the length of time the rotor is in service following its last inspection as discussed in WCAP-11525, Section 8.0. The rotor inspection interval selected in WCAP-11525 for evaluation of the fully integral low pressure turbine rotor is 10 years (WCAP-11525, Section 8.2, Page 8-3), even though evaluations (e.g., Figure 12.2-38 of the PINGP USAR from Reference 52 of the USAR) showed very low failure probabilities at 30 years with no inspection.

In accordance with Section 8.0 of WCAP-11525, neither the turbine valve test interval (e.g., 12 months) nor the rotor inspection interval (e.g., 10 years) involves a time-limited assumption defined by the current operating term of the plant. Therefore, the analysis of turbine missiles discussed in USAR Section 12.2.7.1, including the effects of turbine valve test frequency and turbine rotor inspection interval, are not TLAA's. Since this issue does not meet the definition of a TLAA, it need not be discussed in the LRA. Therefore, LRA Section 4.7.5 can be withdrawn.

Conforming LRA changes to reflect withdrawal of Section 4.7.5 are as follows:

In LRA Section 3.4.2.3 on Page 3.4-21, the last bullet, Probability of Damage to Safeguards Equipment from Turbine Missiles, is deleted in its entirety.

In LRA Table 4.1-1 on Page 4.1-7, the last line item, Probability of Damage to Safeguards Equipment from Turbine Missiles, is deleted in its entirety.

In LRA Section 4.7 on Page 4.7-1, the sentence is revised in its entirety to read:

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Other PINGP-specific TLAAAs include leak-before-break (LBB) analyses, underclad cracking, RCP flywheel, and fatigue analysis of cranes.

LRA Section 4.7.5 on Pages 4.7-4 through 4.7-6 is deleted in its entirety.

LRA Section A4.9 on Pages A-25 and A-26 is deleted in its entirety.

Enclosure 4

License Renewal Commitment List

17 Pages

Prairie Island Nuclear Generating Plant License Renewal Commitments

The following table provides the list of commitments included in the Application for Renewed Operating Licenses (LRA) for Prairie Island Nuclear Generating Plant (PINGP) Units 1 and 2, as updated in subsequent correspondence.

The commitments in this list are anticipated to be the final commitments which will be confirmed in the NRC's Safety Evaluation Report (SER) for the renewed operating licenses. These commitments, as confirmed in the SER, will become effective upon NRC issuance of the renewed licenses. In addition, as stated in the LRA, the final commitments will be incorporated into the Updated Safety Analysis Report (USAR).

Commitment Number	Commitment	Implementation Schedule	Related LRA Section Number
1	Each year, following the submittal of the PINGP License Renewal Application and at least three months before the scheduled completion of the NRC review, NMC will submit amendments to the PINGP application pursuant to 10 CFR 54.21(b). These revisions will identify any changes to the Current Licensing Basis that materially affect the contents of the License Renewal Application, including the USAR supplements.	12 months after LRA submittal date and at least 3 months before completion of NRC review	1.4
2	Following the issuance of the renewed operating license, the summary descriptions of aging management programs and TLAA's provided in Appendix A, and the final list of License Renewal commitments, will be incorporated into the PINGP USAR as part of a periodic USAR update in accordance with 10 CFR 50.71(e). Other changes to specific sections of the PINGP USAR necessary to reflect a renewed operating license will also be addressed at that time.	First USAR update in accordance with 10 CFR 50.71(e) following issuance of renewed operating licenses	A1.0
3	An Aboveground Steel Tanks Program will be implemented. Program features will be as described in LRA Section B2.1.2.	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.2
4	Procedures for the conduct of inspections in the External Surfaces Monitoring Program, Structures Monitoring Program, Buried Piping and Tanks Inspection Program, and the RG 1.127 Inspection of Water-Control Structures Associated with	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.6

Prairie Island Nuclear Generating Plant License Renewal Commitments

Commitment Number	Commitment	Implementation Schedule	Related LRA Section Number
	Nuclear Power Plants Program will be enhanced to include guidance for visual inspections of installed bolting.		
5	A Buried Piping and Tanks Inspection Program will be implemented. Program features will be as described in LRA Section B2.1.8.	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.8
6	The Closed-Cycle Cooling Water System Program will be enhanced to include periodic inspection of accessible surfaces of components serviced by closed-cycle cooling water when the systems or components are opened during scheduled maintenance or surveillance activities. Inspections are performed to identify the presence of aging effects and to confirm the effectiveness of the chemistry controls. Visual inspection of component internals will be used to detect loss of material and heat transfer degradation. Enhanced visual or volumetric examination techniques will be used to detect cracking. [Revised in letter dated 1/20/2009 in response to RAI 3.3.2-13-01]	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.9
7	The Compressed Air Monitoring Program will be enhanced as follows: <ul style="list-style-type: none"> • Station and Instrument Air System air quality will be monitored and maintained in accordance with the instrument air quality guidance provided in ISA S7.0.01-1996. Particulate testing will be revised to use a particle size methodology as specified in ISA S7.0.01. • The program will incorporate on-line dew point monitoring. 	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.10

Prairie Island Nuclear Generating Plant License Renewal Commitments

Commitment Number	Commitment	Implementation Schedule	Related LRA Section Number
	[Revised in letter dated 2/6/2009 in response to Region III License Renewal Inspection]		
8	An Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program will be completed. Program features will be as described in LRA Section B2.1.11.	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.11
9	An Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program will be implemented. Program features will be as described in LRA Section B2.1.12.	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.12
10	An Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits Program will be implemented. Program features will be as described in LRA Section B2.1.13.	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.13
11	<p>The External Surfaces Monitoring Program will be enhanced as follows:</p> <ul style="list-style-type: none"> • The scope of the program will be expanded as necessary to include all metallic and non-metallic components within the scope of License Renewal that require aging management in accordance with this program. • The program will ensure that surfaces that are inaccessible or not readily visible during plant operations will be inspected during refueling outages. • The program will ensure that surfaces that are inaccessible or not readily visible during both plant operations and refueling outages will be inspected at intervals that provide reasonable assurance that aging 	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.14

Prairie Island Nuclear Generating Plant License Renewal Commitments

Commitment Number	Commitment	Implementation Schedule	Related LRA Section Number
	<p>effects are managed such that the applicable components will perform their intended function during the period of extended operation.</p> <ul style="list-style-type: none"> • The program will apply physical manipulation techniques, in addition to visual inspection, to detect aging effects in elastomers and plastics. • The program will include acceptance criteria (e.g., threshold values for identified aging effects) to ensure that the need for corrective actions will be identified before a loss of intended functions. • The program will ensure that program documentation such as walkdown records, inspection results, and other records of monitoring and trending activities are auditable and retrievable. <p>[Revised in letter dated 2/6/2009 in response to RAI B2.1.14-1 Follow Up question]</p>		
12	<p>The Fire Protection Program will be enhanced to require periodic visual inspection of the fire barrier walls, ceilings, and floors to be performed during walkdowns at least once every refueling cycle.</p> <p>[Revised in letter dated 12/5/2008 in response to RAI B2.1.15-3]</p>	<p>U1 - 8/9/2013 U2 - 10/29/2014</p>	B2.1.15
13	<p>The Fire Water System Program will be enhanced as follows:</p> <ul style="list-style-type: none"> • The program will be expanded to include eight additional yard fire hydrants in the scope of the annual visual inspection and flushing activities. 	<p>U1 - 8/9/2013 U2 - 10/29/2014</p>	B2.1.16

Prairie Island Nuclear Generating Plant License Renewal Commitments

Commitment Number	Commitment	Implementation Schedule	Related LRA Section Number
	<ul style="list-style-type: none"> The program will require that sprinkler heads that have been in place for 50 years will be replaced or a representative sample of sprinkler heads will be tested using the guidance of NFPA 25, "Inspection, Testing and Maintenance of Water-Based Fire Protection Systems" (2002 Edition, Section 5.3.1.1.1). Sample testing, if performed, will continue at a 10-year interval following the initial testing. 		
14	<p>The Flux Thimble Tube Inspection Program will be enhanced as follows:</p> <ul style="list-style-type: none"> The program will require that the interval between inspections be established such that no flux thimble tube is predicted to incur wear that exceeds the established acceptance criteria before the next inspection. The program will require that re-baselining of the examination frequency be justified using plant-specific wear rate data unless prior plant-specific NRC acceptance for the re-baselining was received. If design changes are made to use more wear-resistant thimble tube materials, sufficient inspections will be conducted at an adequate inspection frequency for the new materials. The program will require that flux thimble tubes that cannot be inspected must be removed from service. 	<p>U1 - 8/9/2013 U2 - 10/29/2014</p>	B2.1.18
15	<p>The Fuel Oil Chemistry Program will be enhanced as follows:</p> <ul style="list-style-type: none"> Particulate contamination testing of fuel oil in the eleven fuel oil storage tanks in scope of License Renewal will be performed, in accordance with ASTM D 6217, on an 	<p>U1 - 8/9/2013 U2 - 10/29/2014</p>	B2.1.19

Prairie Island Nuclear Generating Plant License Renewal Commitments

Commitment Number	Commitment	Implementation Schedule	Related LRA Section Number
	<p>annual basis.</p> <ul style="list-style-type: none"> One-time ultrasonic thickness measurements will be performed at selected tank bottom and piping locations prior to the period of extended operation. 		
16	A Fuse Holders Program will be implemented. Program features will be as described in LRA Section B2.1.20.	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.20
17	An Inaccessible Medium Voltage Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program will be implemented. Program features will be as described in LRA Section B2.1.21	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.21
18	<p>An Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program will be implemented. Program features will be as described in LRA section B2.1.22. Inspections for stress corrosion cracking will be performed by visual examination with a magnified resolution as described in 10 CFR 50.55a(b)(2)(xxi)(A) or with ultrasonic methods.</p> <p>[Revised in letter dated 2/6/2009 in response to RAI B2.1.22-1 Follow Up question]</p>	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.22
19	<p>The Inspection of Overhead Heavy Load and Light Load (Related to Refueling) Handling Systems Program will be enhanced as follows:</p> <ul style="list-style-type: none"> Program implementing procedures will be revised to ensure the components and structures subject to inspection are clearly identified. Program inspection procedures will be enhanced to include the parameters corrosion and wear where 	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.23

Prairie Island Nuclear Generating Plant License Renewal Commitments

Commitment Number	Commitment	Implementation Schedule	Related LRA Section Number
	omitted.		
20	A Metal-Enclosed Bus Program will be implemented. Program features will be as described in LRA Section B2.1.26.	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.26
21	Number Not Used [Revised in letter dated 3/27/2009]		
22	<p>The Nickel-Alloy Penetration Nozzles Welded to the Upper Reactor Vessel Closure Heads of Pressurized Water Reactors Program will be enhanced as follows:</p> <ul style="list-style-type: none"> • The program will require that any deviations from implementing the appropriate required inspection methods of the NRC First Revised Order EA-03-009, "Issue of Order Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors," dated February 20, 2004 (Order), as amended, will be submitted for NRC review and approval in accordance with the Order, as amended. • The program will require that any deviations from implementing the required inspection frequencies mandated by the Order, as amended, will be submitted for NRC review and approval in accordance with the Order, as amended. • The program will require that relevant flaw indications detected during the augmented inspections of the upper vessel head penetration nozzles will be evaluated in accordance with the criteria provided in the letter from Mr. Richard Barrett, NRC, Office of Nuclear Reactor 	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.28

Prairie Island Nuclear Generating Plant License Renewal Commitments

Commitment Number	Commitment	Implementation Schedule	Related LRA Section Number
	<p>Regulation (NRR), Division of Engineering to Alex Marion, Nuclear Energy Institute (NEI), dated April 11, 2003, or in accordance with NRC-approved Code Cases that incorporate the flaw evaluation procedures and criteria of the NRC's April 11, 2003, letter to NEI.</p> <ul style="list-style-type: none"> The program will require that, if leakage or evidence of cracking in the vessel head penetration nozzles (including associated J-groove welds) is detected while ranked in the "Low," "Moderate," or "Replaced" susceptibility category, the nozzles are to be immediately reclassified to the "High" susceptibility category and the required augmented inspections for the "High" susceptibility category are to be implemented during the same outage the leakage or cracking is detected. 		
23	A One-Time Inspection Program will be completed. Program features will be as described in LRA Section B2.1.29.	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.29
24	A One-Time Inspection of ASME Code Class 1 Small-Bore Piping Program will be completed. Program features will be as described in LRA Section B2.1.30.	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.30
25	<p>For the PWR Vessel Internals Program, PINGP commits to the following activities for managing the aging of reactor vessel internals components:</p> <ul style="list-style-type: none"> Participate in the industry programs for investigating and managing aging effects on reactor internals; Evaluate and implement the results of the industry programs as applicable to the reactor internals; and Upon completion of these programs, but not less than 24 	U1 - 8/9/2011 U2 - 10/29/2012	B2.1.32

Prairie Island Nuclear Generating Plant License Renewal Commitments

Commitment Number	Commitment	Implementation Schedule	Related LRA Section Number
	months before entering the period of extended operation, submit an inspection plan for reactor internals to the NRC for review and approval.		
26	The Reactor Head Closure Studs Program will be enhanced to incorporate controls that ensure that any future procurement of reactor head closure studs will be in accordance with the material and inspection guidance provided in NRC Regulatory Guide 1.65.	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.33
27	<p>The Reactor Vessel Surveillance Program will be enhanced as follows:</p> <ul style="list-style-type: none"> • A requirement will be added to ensure that all withdrawn and tested surveillance capsules, not discarded as of August 31, 2000, are placed in storage for possible future reconstitution and use. • A requirement will be added to ensure that in the event spare capsules are withdrawn, the untested capsules are placed in storage and maintained for future insertion. 	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.34

Prairie Island Nuclear Generating Plant License Renewal Commitments

Commitment Number	Commitment	Implementation Schedule	Related LRA Section Number
28	<p>The RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants Program will be enhanced as follows:</p> <ul style="list-style-type: none"> • The program will include inspections of concrete and steel components that are below the water line at the Screenhouse and Intake Canal. The scope will also require inspections of the Approach Canal, Intake Canal, Emergency Cooling Water Intake, and Screenhouse immediately following extreme environmental conditions or natural phenomena including an earthquake, flood, tornado, severe thunderstorm, or high winds. • The program parameters to be inspected will include an inspection of water-control concrete components that are below the water line for cavitation and erosion degradation. • The program will visually inspect for damage such as cracking, settlement, movement, broken bolted and welded connections, buckling, and other degraded conditions following extreme environmental conditions or natural phenomena. 	<p>U1 - 8/9/2013 U2 - 10/29/2014</p>	B2.1.35
29	<p>A Selective Leaching of Materials Program will be completed. Program features will be as described in LRA B2.1.36.</p>	<p>U1 - 8/9/2013 U2 - 10/29/2014</p>	B2.1.36

Prairie Island Nuclear Generating Plant License Renewal Commitments

Commitment Number	Commitment	Implementation Schedule	Related LRA Section Number
30	<p>The Structures Monitoring Program will be enhanced as follows:</p> <ul style="list-style-type: none"> • The following structures, components, and component supports will be added to the scope of the inspections: <ul style="list-style-type: none"> ○ Approach Canal ○ Fuel Oil Transfer House ○ Old Administration Building and Administration Building Addition ○ Component supports for cable tray, conduit, cable, tubing tray, tubing, non-ASME vessels, exchangers, pumps, valves, piping, mirror insulation, non-ASME valves, cabinets, panels, racks, equipment enclosures, junction boxes, bus ducts, breakers, transformers, instruments, diesel equipment, housings for HVAC fans, louvers, and dampers, HVAC ducts, vibration isolation elements for diesel equipment, and miscellaneous electrical and mechanical equipment items ○ Miscellaneous electrical equipment and instrumentation enclosures including cable tray, conduit, wireway, tube tray, cabinets, panels, racks, equipment enclosures, junction boxes, breaker housings, transformer housings, lighting fixtures, and metal bus enclosure assemblies ○ Miscellaneous mechanical equipment enclosures including housings for HVAC fans, louvers, and dampers ○ SBO Yard Structures and components including SBO cable vault and bus duct enclosures. 	<p>U1 - 8/9/2013 U2 - 10/29/2014</p>	B2.1.38

Prairie Island Nuclear Generating Plant License Renewal Commitments

Commitment Number	Commitment	Implementation Schedule	Related LRA Section Number
	<ul style="list-style-type: none"> ○ Fire Protection System hydrant houses ○ Caulking, sealant and elastomer materials ○ Non-safety related masonry walls that support equipment relied upon to perform a function that demonstrates compliance with a regulated event(s). <ul style="list-style-type: none"> ● The program will be enhanced to include additional inspection parameters. ● The program will require an inspection frequency of once every five (5) years for structures and structural components within the scope of the program. The frequency of inspections can be adjusted, if necessary, to allow for early detection and timely correction of negative trends. ● The program will require periodic sampling of groundwater and river water chemistries to ensure they remain non-aggressive. 		
31	A Thermal Aging Embrittlement of Cast Austenitic Stainless Steel (CASS) Program will be implemented. Program features will be as described in LRA Section B2.1.39.	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.39
32	<p>The Water Chemistry Program will be enhanced as follows:</p> <ul style="list-style-type: none"> ● The program will require increased sampling to be performed as needed to confirm the effectiveness of corrective actions taken to address an abnormal chemistry condition. ● The program will require Reactor Coolant System dissolved oxygen Action Level limits to be consistent with 	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.40

Prairie Island Nuclear Generating Plant License Renewal Commitments

Commitment Number	Commitment	Implementation Schedule	Related LRA Section Number
	<p>the limits established in the EPRI PWR Primary Water Chemistry Guidelines."</p> <p>[Revised in letter dated 12/5/2008 in response to RAI B2.1.40-3]</p>		
33	<p>The Metal Fatigue of Reactor Coolant Pressure Boundary Program will be enhanced as follows:</p> <ul style="list-style-type: none"> • The program will monitor the six component locations identified in NUREG/CR-6260 for older vintage Westinghouse plants, either by tracking the cumulative number of imposed stress cycles using cycle counting, or by tracking the cumulative fatigue usage, including the effects of coolant environment. The following locations will be monitored: <ul style="list-style-type: none"> ○ Reactor Vessel Inlet and Outlet Nozzles ○ Reactor Pressure Vessel Shell to Lower Head ○ RCS Hot Leg Surge Line Nozzle ○ RCS Cold Leg Charging Nozzle ○ RCS Cold Leg Safety Injection Accumulator Nozzle ○ RHR-to-Accumulator Piping Tee • Program acceptance criteria will be clarified to require corrective action to be taken before a cumulative fatigue usage factor exceeds 1.0 or a design basis transient cycle limit is exceeded. <p>[Revised in letter dated 1/9/2009 in response to RAI 4.3.1.1-1]</p>	<p>U1 - 8/9/2013</p> <p>U2 - 10/29/2014</p>	B3.2

Prairie Island Nuclear Generating Plant License Renewal Commitments

Commitment Number	Commitment	Implementation Schedule	Related LRA Section Number
34	Reactor internals baffle bolt fatigue transient limits of 1835 cycles of plant loading at 5% per minute and 1835 cycles of plant unloading at 5% per minute will be incorporated into the Metal Fatigue of Reactor Coolant Pressure Boundary Program and USAR Table 4.1-8.	U1 - 8/9/2013 U2 - 10/29/2014	B3.2
35	NSPM will perform an ASME Section III fatigue evaluation of the lower head of the pressurizer to account for effects of insurge/outsurge transients. The evaluation will determine the cumulative fatigue usage of limiting pressurizer component(s) through the period of extended operation. The analyses will account for periods of both "Water Solid" and "Standard Steam Bubble" operating strategies. Analysis results will be incorporated, as applicable, into the Metal Fatigue of Reactor Coolant Pressure Boundary Program. [Revised in letter dated 1/9/2009 in response to RAI 4.3.1.1-1]	U1 - 8/9/2013 U2 - 10/29/2014	4.3.1.3
36	NSPM will complete fatigue calculations for the pressurizer surge line hot leg nozzle and the charging nozzle using the methodology of the ASME Code (Subsection NB) and will report the revised CUFs and CUFs adjusted for environmental effects at these locations as an amendment to the PINGP LRA. Conforming changes to LRA Section 4.3.3, "PINGP EAF Results," will also be included in that amendment to reflect analysis results and remove references to stress-based fatigue monitoring. [Added in letter dated 1/9/2009 in response to RAI 4.3.1.1-1]	April 30, 2009	4.3.3
37	NSPM will revise procedures for excavation and trenching controls and archaeological, cultural and historic resource protection to identify sensitive areas and provide guidance for ground-disturbing activities. The procedures will be revised to include drawings and illustrations to assist users in identifying	8/9/2013	ER 4.16.1

Prairie Island Nuclear Generating Plant License Renewal Commitments

Commitment Number	Commitment	Implementation Schedule	Related LRA Section Number
	<p>culturally sensitive areas, and pictures of artifacts that are prevalent in the area of the Plant site. The revised procedures will also require training of the Site Environmental Coordinator and other personnel responsible for proper execution of excavation or other ground-disturbing activities.</p> <p>[Added in ER revision submitted in letter dated 3/4/2009]</p>		
38	<p>NSPM will conduct a Phase I Reconnaissance Field Survey of the disturbed areas within the Plant's boundaries. In addition, NSPM will conduct Phase I field surveys of areas of known archaeological sites to precisely determine their boundaries. NSPM will use the results of these surveys to designate areas for archaeological protection.</p> <p>[Added in ER revision submitted in letter dated 3/4/2009]</p>	8/9/2013	ER 4.16.2
39	<p>NSPM will prepare, maintain and implement a Cultural Resources Management Plan (CRMP) to protect significant historical, archaeological, and cultural resources that may currently exist on the Plant site. In connection with the preparation of the CRMP, NSPM will conduct botanical surveys to identify culturally and medicinally important species on the Plant site, and incorporate provisions to protect such plants into the CRMP.</p> <p>[Added in ER revision submitted in letter dated 3/4/2009]</p>	8/9/2013	ER 4.16.2
40	<p>NSPM will consult with a qualified archaeologist prior to conducting any ground-disturbing activity in any area designated as undisturbed and in any disturbed area that is described as potentially containing archaeological resources (as determined by the Phase I Reconnaissance Field Survey</p>	8/9/2013	ER 4.16.2

Prairie Island Nuclear Generating Plant License Renewal Commitments

Commitment Number	Commitment	Implementation Schedule	Related LRA Section Number
	discussed in Commitment Number 38). [Added in ER revision submitted in letter dated 3/4/2009]		
41	During the first refueling outage following refueling cavity leak repairs in each Unit (scheduled for refueling outages 1R26 and 2R26), concrete will be removed from the sump C pit to expose an area of the containment vessel bottom head. Visual examination and ultrasonic thickness measurement will be performed on the portions of the containment vessels exposed by the excavations. An assessment of the condition of exposed concrete and rebar will also be performed. Degradation observed in the exposed containment vessel, concrete or rebar will be entered into the Corrective Action Program and evaluated for impact on structural integrity and identification of additional actions that may be warranted. [Added in letter dated 4/6/09 in response to Follow Up RAI B2.1.38]	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.38
42	During the two consecutive refueling outages following refueling cavity leak repairs in each Unit (scheduled for refueling outages 1R26 and 2R26), visual inspections will be performed of the areas where reactor cavity leakage had been observed previously to confirm that leakage has been resolved. The inspection results will be documented. If refueling cavity leakage is again identified, the issue will be entered into the Corrective Action Program and evaluated for identification of additional actions to mitigate leakage and monitor the condition of the containment vessel and internal structures. [Added in letter dated 4/6/09 in response to Follow Up RAI B2.1.38]	U1 - 8/9/2013 U2 - 10/29/2014	B2.1.38

Prairie Island Nuclear Generating Plant License Renewal Commitments

Commitment Number	Commitment	Implementation Schedule	Related LRA Section Number
43	<p>Preventive maintenance requirements will be implemented to require periodic replacement of rubber flexible hoses in the Diesel Generators and Support System that are exposed to fuel oil or lubricating oil internal environments.</p> <p>[Added in letter dated 4/6/09 in response to RAI 3.3.2-8-1]</p>	<p>U1 - 8/9/2013 U2 - 10/29/2014</p>	Table 3.3.2-8