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Date: Fri, Jun 30, 2006 4:09 PM
Subject: Responses to ARM Questions 482 & 483

Jim - these two Q&As complete your requested submittal. Doug Ellis, Pilgrim Licensing.

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Subject: Responses to ARM Questions 482 & 483
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B.1.16.2-J-06, Inservice Inspection:

In the LRA, Appendix B.1.16.2, Inservice Inspection, the PNPS inservice inspection program is described as a plant specific program encompassing ASME Section XI, Subsections IWA, IWB, IWC, IWD and IWD requirements. The guidelines for elements of an acceptable plant specific aging management program are set forth in NUREG-1800 (LRA-SRP), Appendix A, Section A.1.2.3, Aging Management Program Elements.

In PNPS ,LRPD-02, Revision 1, Aging Management Program Evaluation Report, Section 4.14.1, Inservice Inspection Program, there is no direct comparison of the elements of PNPS plant-specific inservice inspection program against the elements of an acceptable plant specific aging management as described in NUREG-1800. The PNPS evaluation of its plant-specific inservice inspection program provides essentially the same information that is presented in LRA, Appendix B.1.16.2.

Question:

Please provide a direct comparison of each element of PNPS's plant specific inservice inspection program against the guidelines for acceptable aging management program elements as specified in NUREG-1800, Appendix A.

or,

Please provide a detailed discussion of the critical thinking that supports PNPS' determination that its plant-specific inservice inspection program complies with the guidelines of NUREG-1800, Appendix A.

RESPONSE:

NUREG-1800, Appendix A, **A.1.2.3.1 Scope of Program**

1. The specific program necessary for license renewal should be identified. The scope of the program should include the specific structures and components of which the program manages the aging.

PNPS ISI Program

1. Scope of Program

The ISI Program manages cracking, loss of material, and reduction of fracture toughness of reactor coolant system piping, components, and supports. The program implements applicable requirements of ASME Section XI, Subsections IWA, IWB, IWC, IWD and IWF, and other requirements specified in 10CFR50.55a with approved NRC alternatives and relief requests. Every 10 years the ISI Program is updated to the latest ASME Section XI code edition and addendum approved by the NRC in 10CFR50.55a.

ASME Section XI inspection requirements for reactor vessel internals (Subsection IWB, Categories B-N-1 and B-N-2) are not in the ISI Program, but are included in the BWR Vessel Internals Program.

Comparison of PNPS ISI Program to NUREG-1800

This PNPS program scope identifies the program and includes the specific structures and components for which the program manages the effects of aging. Thus, the scope is consistent with NUREG-1800, Appendix A description of program scope.

NUREG-1800, Appendix A, **A.1.2.3.2 Preventive Actions**

1. The activities for prevention and mitigation programs should be described. These actions should mitigate or prevent aging degradation.

2. For condition or performance monitoring programs, they do not rely on preventive actions and thus, this information need not be provided. More than one type of aging management program may be implemented to ensure that aging effects are managed.

PNPS ISI Program

2. Preventive Actions

The ISI Program is a condition monitoring program that does not include preventive actions.

Comparison of PNPS ISI Program to NUREG-1800

Since the PNPS ISI program is a condition monitoring program, preventive actions are not provided. This is consistent with NUREG-1800, Appendix A description of preventive actions.

NUREG-1800, Appendix A, **A.1.2.3.3 Parameters Monitored or Inspected**

1. The parameters to be monitored or inspected should be identified and linked to the degradation of the particular structure and component intended function(s).

2. For a condition monitoring program, the parameter monitored or inspected should detect the presence and extent of aging effects. Some examples are measurements of wall thickness and detection and sizing of cracks.

3. For a performance monitoring program, a link should be established between the degradation of the particular structure or component intended function(s) and the parameter(s) being monitored. An example of linking the degradation of a passive component intended function with the performance being monitored is linking the fouling of heat exchanger tubes with the heat transfer intended function. This could be monitored by periodic heat balances. Since this example deals only with one intended function of the tubes, heat transfer, additional programs may be necessary to manage other intended function(s) of the tubes, such as pressure boundary. A performance monitoring program may not ensure the structure and component intended function(s) without linking the degradation of passive intended functions with the performance being monitored. For example, a periodic diesel generator test alone would not provide assurance that the diesel will start and run properly under all applicable design conditions. While the test verifies that the diesel will perform if all the support systems function, it provides little information related to the material condition of the support components and their ability to withstand DBE loads. Thus, a DBE, such as a seismic event, could cause the diesel supports, such as the diesel embedment plate anchors or the fuel oil tank, to fail if the effects of aging on these components are not managed during the period of extended operation.

4. For prevention and mitigation programs, the parameters monitored should be the specific parameters being controlled to achieve prevention or mitigation of aging effects. An example is the coolant oxygen level that is being controlled in a water chemistry program to mitigate pipe cracking.

PNPS ISI Program

3. Parameters Monitored/Inspected

The program uses nondestructive examination (NDE) techniques to detect and characterize flaws. Volumetric examinations such as radiographic, ultrasonic or eddy current examinations are used to locate surface and subsurface flaws. Surface examinations, such as magnetic particle or dye penetrant testing, are used to locate surface flaws.

Three levels of visual examinations are specified. VT-1 visual examination is conducted to assess the condition of the surface of the part being examined, looking for cracks and symptoms of wear, corrosion, erosion or physical damage. It can be done with either direct visual observation or with remote examination using various optical and video devices. VT-2 visual examination is conducted specifically to locate evidence of leakage from pressure retaining components (period pressure tests). While the system is

under pressure for a leakage test, visual examinations are conducted to detect direct or indirect indication of leakage. VT-3 visual examination is conducted to determine general mechanical and structural condition of components and supports and to detect discontinuities and imperfections.

Comparison of PNPS ISI Program to NUREG-1800

The PNPS ISI program is a condition monitoring program that detects the presence and extent of aging effects such as loss of material and cracking. Parameters monitored are specified and linked to degradation thus, the PNPS preventive actions are consistent with NUREG-1800, Appendix A description of parameters monitored or inspected.

***NUREG-1800, Appendix A,* A.1.2.3.4 Detection of Aging Effects**

1. Detection of aging effects should occur before there is a loss of the structure and component intended function(s). The parameters to be monitored or inspected should be appropriate to ensure that the structure and component intended function(s) will be adequately maintained for license renewal under all CLB design conditions. This includes aspects such as method or technique (e.g., visual, volumetric, surface inspection), frequency, sample size, data collection and timing of new/one-time inspections to ensure timely detection of aging effects. Provide information that links the parameters to be monitored or inspected to the aging effects being managed.

2. Nuclear power plants are licensed based on redundancy, diversity, and defense-in-depth principles. A degraded or failed component reduces the reliability of the system, challenges safety systems, and contributes to plant risk. Thus, the effects of aging on a structure or component should be managed to ensure its availability to perform its intended function(s) as designed when called upon. In this way, all system level intended function(s), including redundancy, diversity, and defense-in-depth consistent with the plant's CLB, would be maintained for license renewal. A program based solely on detecting structure and component failure should not be considered as an effective aging management program for license renewal.

3. This program element describes "when," "where," and "how" program data are collected (i.e., all aspects of activities to collect data as part of the program).

4. The method or technique and frequency may be linked to plant-specific or industry-wide operating experience. Provide justification, including codes and standards referenced, that the technique and frequency are adequate to detect the aging effects before a loss of SC intended function. A program based solely on detecting SC failures is not considered an effective aging management program.

5. When sampling is used to inspect a group of SCs, provide the basis for the inspection population and sample size. The inspection population should be based on such aspects of the SCs as a similarity of materials of construction, fabrication, procurement, design, installation, operating environment, or aging effects. The sample size should be based on such aspects of the SCs as the specific aging effect, location, existing technical information, system and structure design, materials of construction, service environment, or previous failure history. The samples should be biased toward locations most susceptible to the specific aging effect of concern in the period of extended operation. Provisions should also be included on expanding the sample size when degradation is detected in the initial sample.

PNPS ISI Program

4. Detection of Aging Effects

The ISI Program manages cracking and loss of material, as applicable, for carbon steel, low alloy steel and stainless steel/nickel based alloy subcomponents of the reactor pressure vessel using NDE techniques specified in ASME Section XI, Subsections IWB, IWC, and IWD examination categories.

The ISI Program manages cracking, loss of material, and reduction of fracture toughness, as applicable, of reactor coolant system components using NDE techniques specified in ASME Section XI, Subsections IWB, IWC and IWD examination categories.

The ISI Program manages loss of material for ASME Class MC and Class 1, 2, and 3 piping and component supports and their anchorages by visual examination of components using NDE techniques specified in ASME Section XI, Subsection IWF examination categories.

No aging effects requiring management are identified for lubrite sliding supports. However, the ISI Program will confirm the absence of aging effects for the period of extended operation.

Comparison of PNPS ISI Program to NUREG-1800

The PNPS ISI Program is based on ASME Inspection Program B (IWA-2432). Through reference to the requirements of ASME Section XI requirements, the program detects the effects of aging prior to loss of intended function. The referenced requirements of ASME also define all aspects of activities to collect data for the program. The program is not based solely on detecting SC failures. The sample population, sample size, and provisions for sample expansion if degradation is found are in accordance with the requirements of ASME Section XI. The PNPS detection of aging effects is consistent with NUREG-1800, Appendix A description of detection of aging effects.

***NUREG-1800, Appendix A,* A.1.2.3.5 Monitoring and Trending**

1. Monitoring and trending activities should be described, and they should provide predictability of the extent of degradation and thus effect timely corrective or mitigative actions. Plant specific and/or industry-wide operating experience may be considered in evaluating the appropriateness of the technique and frequency.

2. This program element describes "how" the data collected are evaluated and may also include trending for a forward look. This includes an evaluation of the results against the acceptance criteria and a prediction regarding the rate of degradation in order to confirm that timing of the next scheduled inspection will occur before a loss of SC intended function. Although aging indicators may be quantitative or qualitative, aging indicators should be quantified, to the extent possible, to allow trending. The parameter or indicator trended should be described. The methodology for analyzing the inspection or test results against the acceptance criteria should be described. Trending is a comparison of the current monitoring results with previous monitoring results in order to make predictions for the future.

PNPS ISI Program

5. Monitoring and Trending

Results are compared, as appropriate, to baseline data and other previous test results. Indications are evaluated in accordance with ASME Section XI. If the component is qualified as acceptable for continued service, the area containing the indication is reexamined during subsequent inspection periods. Examinations that reveal indications that exceed the acceptance standards are extended to include additional examinations in accordance with ASME Section XI.

ISI results are recorded every operating cycle and provided to the NRC after each refueling outage via Owner's Activity Reports prepared by the ISI Program Coordinator. These detailed reports include scope of inspection and significant inspection results.

Comparison of PNPS ISI Program to NUREG-1800

The PNPS ISI Program states, "Results are compared, as appropriate, to baseline data and other previous test results. Indications are evaluated in accordance with ASME Section XI. If the component is qualified as acceptable for continued service, the area containing the indication is reexamined during subsequent inspection periods." The PNPS monitoring and trending activities are consistent with NUREG-1800, Appendix A description of monitoring and trending.

NUREG-1800, Appendix A, **A.1.2.3.6 Acceptance Criteria**

1. The acceptance criteria of the program and its basis should be described. The acceptance criteria, against which the need for corrective actions will be evaluated, should ensure that the structure and component intended function(s) are maintained under all CLB design conditions during the period of extended operation. The program should include a methodology for analyzing the results against applicable acceptance criteria. For example, carbon steel pipe wall thinning may occur under certain conditions due to erosion-corrosion. An aging management program for erosion-corrosion may consist of periodically measuring the pipe wall thickness and comparing that to a specific minimum wall acceptance criterion. Corrective action is taken, such as piping replacement, before reaching this acceptance criterion. This piping may be designed for thermal, pressure, deadweight, seismic, and other loads, and this acceptance criterion must be appropriate to ensure that the thinned piping would be able to carry these CLB design loads. This acceptance criterion should provide for timely corrective action before loss of intended function under these CLB design loads.

2. Acceptance criteria could be specific numerical values, or could consist of a discussion of the process for calculating specific numerical values of conditional acceptance criteria to ensure that the structure and component intended function(s) will be maintained under all CLB design conditions. Information from available references may be cited.

3. It is not necessary to justify any acceptance criteria taken directly from the design basis information that is included in the FSAR because that is a part of the CLB. Also, it is not necessary to discuss CLB design loads if the acceptance criteria do not permit degradation because a structure and component without degradation should continue to function as originally designed. Acceptance criteria, which do permit degradation, are based on maintaining the intended function under all CLB design loads.

4. Qualitative inspections should be performed to same predetermined criteria as quantitative inspections by personnel in accordance with ASME Code and through approved site specific programs.

PNPS ISI Program

6. Acceptance Criteria

A preservice, or baseline, inspection of program components was performed prior to startup to assure freedom from defects greater than code-allowable. This baseline data also provides a basis for evaluating subsequent inservice inspection results. Since plant startup, additional inspection criteria for Class 2 and 3 components have been imposed by 10CFR50.55a for which baseline and inservice data has also been obtained. Results of inservice inspections

are compared, as appropriate, to baseline data, other previous test results, and acceptance criteria of the ASME Section XI, 1998 Edition, 2000 Addenda, for evaluation of any evidence of degradation.

Comparison of PNPS ISI Program to NUREG-1800

The PNPS ISI Program states, "A preservice, or baseline, inspection of program components was performed prior to startup to assure freedom from defects greater than code-allowable. This baseline data also provides a basis for evaluating subsequent inservice inspection results. Since plant startup, additional inspection criteria for Class 2 and 3 components have been imposed by 10CFR50.55a for which baseline and inservice data has also been obtained. Results of inservice inspections are compared, as appropriate, to baseline data, other previous test results, and acceptance criteria of the ASME Section XI, 1998 Edition, 2000 Addenda, for evaluation of any evidence of degradation." The PNPS acceptance criteria are consistent with NUREG-1800, Appendix A description of acceptance criteria.

NUREG-1800, Appendix A, **A.1.2.3.7 Corrective Actions**

1. Actions to be taken when the acceptance criteria are not met should be described. Corrective actions, including root cause determination and prevention of recurrence, should be timely.

2. If corrective actions permit analysis without repair or replacement, the analysis should ensure that the structure and component intended function(s) will be maintained consistent with the CLB.

PNPS ISI Program

7. Corrective Action

If a flaw is discovered during an ISI examination, an evaluation is conducted in accordance with articles IWA-3000 and IWB-3000, IWC-3000, IWD-3000 or IWF-3000 as appropriate. If flaws exceed acceptance standards, such flaws are removed, repaired, or the component is replaced prior to its return to service. For Class 1, 2, and 3, repair and replacement is in conformance with IWA-4000. Acceptance of flaws which exceed acceptance criteria may be accomplished through analytical evaluation without repair, removal or replacement of the flawed component if the evaluation meets the criteria specified in the applicable article of the code.

Comparison of PNPS ISI Program to NUREG-1800

The PNPS ISI Program requires corrective action in accordance with the requirements of ASME Section XI. The PNPS corrective actions are consistent with NUREG-1800, Appendix A description of corrective actions.

***NUREG-1800, Appendix A,* A.1.2.3.8 Confirmation Process**

1. The confirmation process should be described. It should ensure that preventive actions are adequate and that appropriate corrective actions have been completed and are effective.

2. The effectiveness of prevention and mitigation programs should be verified periodically. For example, in managing internal corrosion of piping, a mitigation program (water chemistry) may be used to minimize susceptibility to corrosion. However, it may also be necessary to have a condition monitoring program (ultrasonic inspection) to verify that corrosion is indeed insignificant.

3. When corrective actions are necessary, there should be follow-up activities to confirm that the corrective actions were completed, the root cause determination was performed, and recurrence is prevented.

PNPS ISI Program

8. Confirmation Process

This attribute is discussed in Section 2.0, Background (see below).

Site quality assurance (QA) procedures, review and approval processes, and administrative controls are implemented in accordance with the requirements of 10 CFR Part 50, Appendix B. The PNPS Quality Assurance Program applies to safety-related structures and components. Corrective actions and administrative (document) control for both safety-related and nonsafety-related structures and components are accomplished per the existing PNPS corrective action program and the PNPS document control program.

The confirmation process is part of the corrective action program and includes

- reviews to assure that proposed actions are adequate,
- tracking and reporting of open corrective actions, and
- review of corrective action effectiveness.

Any follow-up inspection required by the confirmation process is documented in accordance with the corrective action program. The corrective action program constitutes the confirmation process for the PNPS aging management programs and activities. The PNPS confirmation process is consistent with NUREG-1801.

Comparison of PNPS ISI Program to NUREG-1800

The PNPS ISI Program invokes site quality assurance (QA) procedures, review and approval processes, and administrative controls in accordance with the

requirements of 10 CFR Part 50, Appendix B. The corrective action program also includes confirmation that corrective actions are completed and are effective. The PNPS confirmation process is consistent with NUREG-1800, Appendix A description of confirmation process.

***NUREG-1800, Appendix A,* A.1.2.3.9 Administrative Controls**

1. The administrative controls of the program should be described. They should provide a formal review and approval process.

2. Any aging management programs to be relied on for license renewal should have regulatory and administrative controls. That is the basis for 10 CFR 54.21(d) to require that the FSAR supplement includes a summary description of the programs and activities for managing the effects of aging for license renewal. Thus, any informal programs relied on to manage aging for license renewal must be administratively controlled and included in the FSAR supplement.

PNPS ISI Program

9. Administrative Controls

This attribute is discussed in Section 2.0, Background (see below).

Site quality assurance (QA) procedures, review and approval processes, and administrative controls are implemented in accordance with the requirements of 10 CFR Part 50, Appendix B. The PNPS Quality Assurance Program applies to safety-related structures and components. Administrative (document) control for both safety-related and nonsafety-related structures and components is accomplished per the existing PNPS document control program. The PNPS administrative controls are consistent with NUREG-1801.

Comparison of PNPS ISI Program to NUREG-1800

The PNPS ISI Program invokes site quality assurance (QA) procedures, review and approval processes, and administrative controls in accordance with the requirements of 10 CFR Part 50, Appendix B. Administrative (document) control is accomplished per the existing PNPS document control program. The SAR supplement includes a summary description of the PNPS ISI Program. The PNPS administrative controls are consistent with NUREG-1800, Appendix A description of administrative controls.

***NUREG-1800, Appendix A,* A.1.2.3.10 Operating experience**

1. Operating experience with existing programs should be discussed. The operating experience of aging management programs, including past corrective actions resulting in program enhancements or additional programs,

should be considered. A past failure would not necessarily invalidate an aging management program because the feedback from operating experience should have resulted in appropriate program enhancements or new programs. This information can show where an existing program has succeeded and where it has failed (if at all) in intercepting aging degradation in a timely manner. This information should provide objective evidence to support the conclusion that the effects of aging will be managed adequately so that the structure and component intended function(s) will be maintained during the period of extended operation.

2. An applicant may have to commit to providing operating experience in the future for new programs to confirm their effectiveness.

PNPS Operating Experience

10. Operating Experience

PNPS ISI Program operating experience identifies a number of occurrences where the program identified aging effects before loss of component intended function. For example, "A scheduled ISI surface examination in 1997 detected an indication adjacent to a welded pipe support lug. The lug was removed and the indication was repaired by welding.

Comparison of PNPS ISI Program to NUREG-1800

As specified in NUREG-1800, the PNPS ISI Program provides objective evidence to support the conclusion that the effects of aging will be managed adequately so that the structure and component intended function(s) will be maintained during the period of extended operation. The PNPS operating experience is consistent with NUREG-1800, Appendix A description of operating experience.

482 (B.1.16.2-J-05, Inservice Inspection):

ASME Section XI, 1998 with 2000 addenda is the basis for PNPS's Inservice Inspection Program, which PNPS states is a plant-specific program in LRA, Appendix B.1.16.2, Inservice Inspection. In response to Request B.1.16.2-J-01 (Item 194), PNPS provided a list and a brief description of exceptions and alternatives to the requirements of ASME Section XI, 1998 edition with 2000 that have been granted under provisions of 10 CFR 50.55a.

QUESTION:

For each of the exceptions or alternatives (i.e., relief requests) listed in PNPS's response to request B.1.16.2-01, PNPS is requested to make a determination of whether the relief request affects the aging management of components that are within the scope of ASME Section XI, regardless of which aging management program they may be assigned to at PNPS

For each of the relief requests where PNPS determines that the aging management of components within the scope of ASME Section XI is NOT affected, PNPS is requested to provide a summary of the critical thinking that supports PNPS's determination..

For each of the relief requests where PNPS determines that the aging management of components within the scope of ASME Section is affected, PNPS is requested to identify which PNPS aging management program(s) and which specific element(s) within the program(s) are affected, and to provide a summary of the critical thinking that supports PNPS' determination.

Response:

The exceptions or alternatives (i.e., relief requests) for the fourth ten-year inspection interval are described in PNPS-RPT-05-001, ASME B&PV Code Section XI, Fourth Ten-Year Inspection Interval, Inservice Inspection (ISI) Program Plan. The period of the fourth ten-year inspection interval is from July 1, 2005 to June 30, 2015, which extends past the term of the current license.

The PNPS integrated plant assessment for license renewal credits inservice inspection for managing various aging effects for components of the reactor vessel, internals and reactor coolant system. The aging effects for which the ISI program is credited include cracking, loss of material and reduction of fracture toughness. Of these effects, only cracking is affected by the relief requests presented in PNPS-RPT-05-001. The relief requests do not affect the inspections of CASS components subject to reduction of fracture toughness. Neither do the relief requests directly affect inspections for loss of material in any component which relies solely on ISI to manage this effect. Where ISI is credited for managing loss of material in components potentially affected by the relief requests, the ISI program only supplements the water chemistry control and one-time inspection programs, which by themselves are sufficient (in accordance with NUREG-1801) to manage loss of material. Consequently, the relief requests must be shown to have no impact on the detection, and thus the management of the aging effect of cracking.

Following is a summary description of the relief requests presented in PNPS-RPT-05-001. See PNPS-RPT-05-001 for the full descriptions and justifications. There were 13 new requests for the fourth ten-year inspection interval, two previously approved relief requests from the third interval, and three requests for the use of code additions and addenda subsequent to the Code of Record for the fourth interval. Of the 13 new requests, six were subsequently withdrawn and three have been approved. The remaining new relief requests are based on or are similar to requests or programs already approved for PNPS or other plants. PNPS-RPT-05-001 provides details of these precedents.

New Relief Requests

PRR-2 (PNPS-RPT-05-001 pages B-6 to B-7)

PRR-2 requests relief from the full pressure requirement of the IWB-5221(a) for Class 1 pressure tests of piping, pumps, and valves (Category B-P, Item Nos. B15.10, B15.50, B15.60, B15.70) for some piping components where testing at full pressure is impractical. The leakage test for most components will be completed at the nominal operating pressure associated with 100% rated reactor power (1035 psig). Components not subject to the 100% pressure test, such as safety valves (blanked off for test) and components which require rework after the test, will be tested in an alternate leakage test at a pressure associated with 5% reactor power, 930 psig. When considering the minimal increase in pressure applied to piping systems at operating pressure versus the pressure attained at 5% power, it is believed that 930 psig will result in a detectable leakage rate, if leakage is going to occur. Therefore, the use of this alternate test for the detection of cracking ensures that the identification of cracking for the limited set of components is still accomplished. The aging effect of cracking is also managed by the water chemistry control – BWR program, the effectiveness of which is assured by the one-time inspection program. Consequently, the aging effect of cracking will be effectively managed.

PRR-4 (PNPS-RPT-05-001 pages B-9 to B-11)

PRR-4 requests relief from the Category B-P, Items B15.50 and B15.70 requirement for the system leakage test to include all ASME Code Class 1 components within the system boundary. Relief was requested to perform the system leakage test with the reactor coolant pressure boundary (RCPB) vent, drain, and branch (VTDB) lines and connections (1 inch and less) in the normally closed position, i.e., the normal configuration during power operation. In this configuration, the small sections of piping and valves downstream of the first isolation valve, are not subjected to system pressure during normal operation and will not be subjected to the leakage test pressure. PNPS-RPT-05-001 provides justification that excluding these components from the test will not adversely impact quality and safety. These piping and valve components are normally heavy wall (Sch. 160 pipe and 600# valve bodies). The VTDB lines and connections are not subject to high stresses or cyclic loads and design ratings are significantly greater than RCPB operating or design pressure. Should leakage occur through these components during normal operation, it would not go undetected. Reactor coolant pressure boundary leakage is routinely monitored during power operation. The leakage test is credited, along with the water chemistry control – BWR and one-time inspection programs, with the management of cracking. Leakage testing detects through wall cracking. For these few normally isolated components, through wall leakage would detected slightly later, but still in a timely manner. The water chemistry program will prevent the conditions contributing to cracking, and the one-time inspection program will perform non-destructive testing to assure that unacceptable cracking is not occurring. Consequently, the aging effect of cracking will be effectively managed.

PRR-5 (PNPS-RPT-05-001 pages B-12 to B-30) (Approved)

PRR-5 requested relief to use alternative requirements from a proposed revision to Supplement 10 of Appendix VIII for examination of Category B-F dissimilar metal (DSM) welds. Supplement 10 contains the qualification requirements for procedures, equipment, and personnel involved with examining DSM welds using ultrasonic techniques. The proposed revision to Supplement 10, which has been approved by the NDE Subcommittee, suggests improvements in the qualification requirements for procedures, equipment, and personnel involved with examining dissimilar metal welds using ultrasonic techniques. The revised requirements will be implemented through the Performance Demonstration Initiative (PDI) Program. The PDI Program was formed by all utilities in 1991 to develop industry programs, qualifications, and related requirements for compliance with Appendix VIII. The performance demonstration is conducted on an RPV mockup containing flaws of various sizes and locations. The demonstration establishes the capability of equipment, procedures, and personnel to find flaws that could be detrimental to the integrity of the RPV. PNPS-RPT-05-001 provides justification that the proposed alternatives will provide an adequate level of quality and safety for the qualifications process such that examination of welds based on the qualified procedures, equipment, and personnel will be able to detect and characterize cracking. Consequently, the aging effect of cracking will still be effectively managed.

PRR-6 (PNPS-RPT-05-001 pages B-31 to B-33) (Withdrawn)

PRR-7 (PNPS-RPT-05-001 pages B-34 to B-36) (Withdrawn)

PRR-8 (PNPS-RPT-05-001 pages B-37 to B-40) (Withdrawn)

PRR-9 (PNPS-RPT-05-001 pages B-41 to B-54) (Approved)

PRR-9 requested relief to use the Performance Demonstration Initiative (PDI) Program in lieu of ASME Code Section XI, Appendix VIII, Supplement 11 requirements for the qualification of procedures, equipment and personnel for pressure retaining piping weld overlay examination. The PDI Program has proposed alternatives to the Supplement 11 requirements. PNPS-RPT-05-001 provides justification that the PDI Program will provide an adequate level of quality and safety for the qualifications process such that examination of welds based on the qualified procedures, equipment, and personnel will be able to detect and characterize cracking. Consequently, the aging effect of cracking will still be effectively managed.

PRR-10 (PNPS-RPT-05-001 pages B-55 to B-60)

PRR-10 requests relief to substitute the previously approved Risk Informed ISI (RI-ISI) program, for ASME Section XI, Examination Categories B-F and B-J requirements for the non-destructive examination (NDE) of Class 1 piping components. The Pilgrim RI-ISI Program was approved for use at Pilgrim during the 2nd Period of the 3rd Inspection Interval and is still applicable for the 4th Inspection Interval. The RI-ISI program has been updated consistent with the intent of NEI-04-05 and continues to meet EPRI TR-112657 and Reg. Guide 1.174 risk acceptance criteria. PNPS-RPT-05-001 provides justification that the use of the RI-ISI program provides an acceptable level of quality and safety for the detection of cracking in the effected welds. Consequently, the aging effect of cracking will still be effectively managed.

PRR-11 (PNPS-RPT-05-001 pages B-61 to B-64) (Approved)

PRR-11 requested relief to use a Performance Demonstration Initiative (PDI) qualified procedure to complete the UT of the RPV vessel-to-flange weld with the requirements of Appendix VIII. Although Appendix VIII is not a requirement for this weld, the qualification process to Appendix VIII criteria demonstrates that the examination and evaluation techniques are equal or surpass the requirements of Appendix I, Subparagraph 2110(b), ASME Section V, Article 4, and the guidance in RG 1.150. PNPS-RPT-05-001 provides justification that the use of the PDI qualified procedure will provide an adequate level of quality and safety for examination of the weld, and ensures that cracking in the weld will be detected. Consequently, the aging effect of cracking will still be effectively managed.

PRR-12 (PNPS-RPT-05-001 pages B-65 to B-67) (Withdrawn)

PRR-13 (PNPS-RPT-05-001 pages B-68 to B-73) (Withdrawn)

PRR-14 (PNPS-RPT-05-001 pages B-74 to B-83) (Withdrawn)

PRR-15 (PNPS-RPT-05-001 pages B-84 to B-91)

PRR-15 requests relief to use alternative contingency repair plan for reactor pressure vessel nozzle safe-end and dissimilar metal piping welds using ASME Code Cases N-638 and N-504-2 with exceptions. Weld overlays involve the application of weld metal circumferentially over and in the vicinity of the flawed weld to restore ASME Section XI margins as required by ASME Code Case N-504-2. Weld overlays have been used in the nuclear industry as an acceptable method to repair flawed weld. The use of overlay filler material that provides excellent resistance to IGSCC provides an effective barrier to crack extension. The potential use of weld overlays to make repairs has no impact on the detection of aging effects.

Previously Approved Relief Requests Applicable To The 4th Interval

PRR-28 (PNPS-RPT-05-001 pages B-92 to B-104)

PRR-28 requested relief to use an alternative to the examination requirements of RPV circumferential shell welds (Item B1.10 of Examination Category B-A). The relief request authorizes the use of a proposed alternative to the RPV shell welds examination requirements of ASME Code, Section XI, for the remaining portion of the initial license period that expires in 2012. Since this relief request expires in 2012 prior to the period of extended operation it can have no impact on the management of aging during the period of extended operation.

PRR-39 (PNPS-RPT-05-001 pages B-105 to B-120)

PRR-39 requested relief to use the weld overlay method based on the methodology of the ASME Code, Section XI, Code Case N-504-2, "Alternative Rules for Repair of Class 1, 2, and 3 Austenitic Stainless Steel Piping," and Code Case N-638, "Similar and Dissimilar Metal Welding Using Ambient Temperature Machine GTAW [gas tungsten arc weld] Temper Bead Technique." PRR-39 is related to the repair of reactor pressure vessel nozzle safe-end welds and dissimilar metal piping welds in the core spray and recirculation systems. Since this relief request expires in 2012 prior to the period of extended operation it can have no impact on the management of aging during the period of extended operation.

Requests For The Use Of Code Additions And Addenda

PIL-05-R-001 (PNPS-RPT-05-001 page D-3)

PIL-05-R-001 proposes use of the 2001 Edition, through the 2003 Addenda, Subparagraph IWA-4540(a) for pressure testing ISI Class 1, 2, and 3 Items following repair / replacement activities performed by welding or brazing on a pressure-retaining boundary. The 2001 Edition, up to the 2003 Addenda of the ASME Section XI Code reduces the pressure test requirements and has been incorporated by reference in 10 CFR 50.55a(b) [Ref: 69 FR 58819 dated October 1, 2004]. The use of alternate testing requirements for repairs has no impact on the detection, and thus the management of aging effects.

PIL-05-R-002 (PNPS-RPT-05-001 page D-4)

PIL-05-R-002 proposes use of the 2001 Edition, through the 2003 Addenda, Subparagraph IWA-2210, including subsection IWA-2211 through IWA-2216, for clarifications as to the requirements of visual inspections to be performed on Class 1, 2, & 3 components during inservice examinations and repair / replacement activities. The 2001 Edition, up to the 2003 Addenda of the ASME Section XI Code has been incorporated by reference in 10 CFR 50.55a(b) [Ref: 69 FR 58819 dated October 1, 2004]. The use of alternate examination techniques using these approved codes still ensures that aging effects will be detected and that the aging management of components is not affected.

PIL-05-R-003 (PNPS-RPT-05-001 page D-5)

PIL-05-R-003 proposes use of Table IWD-2500-1 for Examination Category D-B from the ASME Boiler and Pressure Vessel Code Section XI, 2001 Edition, through the 2003 Addenda, in place of Table IWD-2500-1 for Examination Category D-B from the 1998 Edition, through the 2000 Addenda, for all Class 3 system pressure test requirements. The 1998 Edition, through the 2000 Addenda requires a system hydrostatic test with a VT-2 examination of all Class 3 pressure retaining components under Item No. D2.20, each inspection interval. This requirement and Item No. D2.20 have been deleted in their entirety from the 2001 Edition, 2003 Addenda. The use of other examination and testing techniques are adequate to detect aging effects for and management of aging of components within the scope of ASME Section XI. ISI is not credited for managing aging for any Class 3 components. Thus, use of these codes has no impact on management of aging.