**REQUEST FOR ADDITIONAL INFORMATION NO. 146-1804 REVISION 0**

1/9/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 16 - Technical Specifications
Application Section: TS Section 3.4

QUESTIONS for Technical Specification Branch (CTSB)

16-66

TS Section 3.4 (EDITORIAL).

The following typographical or editorial errors were noted in US-APWR TS LCO 3.4 and associated BASES:

1. Page 3.4.7-1, LCO 3.4.7 NOTES 2: The phrase "the other RHR loop is" should be "the other two RHR loops are."

2. Page 3.4.7-2, Condition A statement: the logical connector "OR" should be indented and the logical connector "AND" should be flushed with the text letf margin.

3. Page 3.4.8-1, LCO 3.4.8 NOTES 2: The phrase "One RHR loop" should be "One required RHR loop."

4. Page 3.4.12-4, SURVEILLANCE REQUIREMENTS, SR 3.4.12.5, FREQUENCY: The connectors "AND" and "OR" should be underlined per the Improved Technical Specification Writers Guide, TSTF-GG-05-01.

5. Page 3.4.16-1, Required Action A.1: Insert the sign "<" after "I-131"

6. Page B 3.4.3-1, BACKGROUND, 5th Paragraph, 2nd Sentence: Incomplete sentence.

7. Page B 3.4.3-4, ACTIONS, A.1 and A.2, 1st Paragraph, 2nd Sentence: The word "parameter" should be "parameters."

8. Page B 3.4.7-3, LCO, 5th Paragraph (top of page): "Note 2" should be "Note 3."

9. Page B 3.4.7-3, APPLICABILITY, 1st Paragraph, 2nd Sentence: The phrase "Two Loops3" should be "Two loops."

10. Page B 3.4.8-1, LCO, 1st Paragraph, 4th Sentence: The word "loop" should be "loops."

11. Page B 3.4.9-1, BACKGROUND, Second Paragraph, Second Sentence: The phrase "pressurizer power operated relief valves (PORVs)" should be "safety depressurization valves (SDVs)"

12. Page B 3.4.11-3, ACTIONS, B.1, B.2, and B.3, First Sentence: The word "PORV" should be "SDV".

13. Page B 3.4.11-5, ACTIONS, F.1, delete "F.2 and F.3" since only F.1 exists in TS 3.4.11.

14. Page B 3.4.11-5, SURVEILLANCE REQUIREMENTS, SR 3.4.11.2, First Sentence: The word "PORV" should be "SDV".

15. Page B 3.4.12-4, APPLICABLE SAFETY ANALYSES, Heat Input Type Transients, Last Paragraph, 1st Sentence: The phrase "two RHR suction relief valve" should be "two RHR suction relief valves."

16. Page B 3.4.12-4, APPLICABLE SAFETY ANALYSES, RHR Suction Relief Valve Performance, 2nd Sentence: The phrase "that RHR" should be "that one RHR."

17. Page B 3.4.12-8, SURVEILLANCE REQUIREMENTS, SR 3.4.12.1/2/3, First Paragraph: the word "incapable" should be "capable."

18. Page B 3.4.12-9, SURVEILLANCE REQUIREMENTS, SR 3.4.12.6, 1st Sentence: The phrase "by testing it" should be "by testing them."

19. Page B 3.4.12-9, SURVEILLANCE REQUIREMENTS, SR 3.4.12.6, 2nd Sentence: "SR 3.4.12.2" should be "SR 3.4.12.4."

20. Page B 3.4.12-9, REFERENCES, Reference 4: "ASME, Section XI" should be "ASME Code for Operation and Maintenance of Nuclear Plants"

21. Page B 3.4.14-2, BACKGROUND, Last Sentence of Fifth Paragraph: Add the word "in" after the word "listed"

22. Page B 3.4.14-4, ACTIONS, C.1, 1st Sentence: The phrase "incapable preventing" should be "incapable of preventing."

23. Page B 3.4.14-6, SURVEILLANCE REQUIREMENTS, SR 3.4.14.2, First Sentence of First Paragraph: Add the word "beyond" after the word "system"

24. Page B 3.4.14-6, SURVEILLANCE REQUIREMENTS, SR 3.4.14.2, 1st Paragraph, 1st Sentence: The word combination "of900 psig," should be "of 900 psig."

25. Page B 3.4.14-6, SURVEILLANCE REQUIREMENTS, SR 3.4.14.2, 1st Paragraph, 4th Sentence: The word combination "24month," should be "24 month."

26. Page B 3.4.15-1, BACKGROUND, 3rd Paragraph, Second Sentence: The word combination "monitorare," should be "monitor are."

27. Page B 3.4.16-3, ACTIONS, A.1 and A.2, Third Paragraph, Third Sentence: A line break was incorrectly inserted after the word "conservatism."

16-67

TS 3.4.1, RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits.

Provide further explanation in the second paragraph of the LCO 3.4.1 Bases discussion of LCO.

The Bases state "RCS total flow contains a measurement error based on performing a precision heat balance and using the result to calibrate the RCS flow rate indicators." The explanation should explicitly identify and describe the source of the measurement error. For example, the STS, NUREG-1431, Bases provide a discussion of this measurement error due to fouling of the feedwater venturi used in the operating plants. Discuss, in the US-APWR TS LCO 3.4.1, BASES LCO section, impacts of detected and undetected fouling of the feedwater flow venturi on performing a precision heat balance, or clarify why this issue does not need to be addressed. NUREG-1431, Rev. 3.1 BASES, LCO section for LCO 3.4.1 indicates that potential fouling of the feedwater venturi could bias the precision heat balance value for total RCS flow rate.

This information will be used to ensure completeness of information provided in the TS Bases.

16-68

TS 3.4.1, RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits.

Compare the minimum total flow rate of 460000 gpm specified in LCO 3.4.1 to the the RC Pump design data shown in FSAR Table 5.4.1. Correct or justify any inconsistencies.

FSAR Table 5.4.1-1 lists a pump design flow of 112000 gpm per pump which is equivalent to a total flow of only 448000 gpm. LCO 3.4.1 and the associated bases show a minimum total flow rate of 460000 gpm which accounts for a maximum of 10% SG tube plugging.

This information is needed to ensure TS requirements are consistent with referenced information provided in the APWR FSAR.

16-69

TS 3.4.3, RCS P/T Limits.

Explain the inclusion of the term "criticality" in the first paragraph of the TS bases B 3.4.3, LCO section.

In the discussion of TS 3.4.3 LCO, the first paragraph states "The two elements of this LCO are: (a) The limit curves for heat up, cool down, and In Service Leak Hydro (ISLH) testing and criticality; and (b) Limits on the rate of change of temperature." The operational limits for criticality is covered in Safety Limit 2.1, TS 3.4.1 and TS 3.4.2. which are more restrictive than TS 3.4.3. Moreover, jusify applying TS 3.4.3 to criticality. Provide a Surveillance Requirement for verifications against these limits.

This information is needed to ensure supporting information in the TS bases is consistent with TS requirements.

16-70

TS 3.4.3, RCS P/T Limits.

Clarify the specific methodology for determining the P/T limits in the US-APWR that are discussed in US-APWR TS LCO 3.4.3 BASES, APPLICABLE SAFETY ANALYSES section.

NUREG-1431, Rev. 3.1, TS LCO 3.4.3 BASES identifies a topical report that defines the methodology, but US-APWR TS BASES ommitted the references for the requirements from 10 CFR 50, Appendix G. MHI omitted the quoted Reference 1 in the STS.

NUREG 1431, Rev 3.1, TS LCO 3.4.3 BASES, APPLICABLE SAFETY ANALYSES indicates that the methodology for determining the P/T limits is referenced in WCAP-7924-A, April 1975. If a similar reference is available for the US-APWR, that reference should be identified in the US-APWR TS LCO 3.4.3 BASES.

16-71

TS 3.4.6, RCS Loops - MODE 4.

Confirm when RHR pumps provide circulation of RCS flow through the core, that only two RHR loops are required to be operable and one RHR loop to be in operation to satisfy LCO 3.4.6 requirements regarding decay heat removal. Revise LCO 3.4.6 and related information in the TS bases B 3.4.6, as appropriate.

The APWR LCO 3.4.6 text repeats the STS LCO 3.4.6 text. The APWR design, however, includes four 50% RHR trains for decay heat removal functions while the Westinghouse design in the STS reflects two 100% RHR trains. Consideration of single failure criteria is required when establishing LCO requirements.

This information is needed to ensure LCO requirements are consistent with RHR system design described in the APWR FSAR.

16-72

TS 3.4.6, RCS Loops - MODE 4.

Provide the methodology for determining the SG secondary side water level "13%" limit required in SR 3.4.6.2and the location of this limit in the FSAR.

The information will be used to ensure that all TS specific operating parameters are verified as correct based upon values stated in the FSAR.

16-73

TS 3.4.9, Pressurizer.

Confirm that the US-APWR pressurizer heaters are permanently powered by Class 1E power supplies in US-APWR TS LCO 3.4.9.

NUREG-1431, Rev 3.1, Surveillance Requirements section notes that SR 3.4.9.3 is not applicable if the pressurizer heaters are permanently powered by Class 1E power supplies. SR 3.4.9.3 is not included in the US-APWR TS, and no substantiating material appears in the US-APWR BACKGROUND section, nor is any FSAR chapter other than Chapter 15 referenced.

16-74

TS 3.4.10, Pressurizer Safety Valves.

Revise SR 3.4.10.1 and related information in TS bases B 3.4.10 to reconcile the lift setpoint requirements.

LCO 3.4.10 specifies the allowable range for OPERABILITY of the Pressurizer Safety Valves to be from 2435 psig to 2485 psig (2460 psig +/- 1%). SR 3.4.10.1 requires verification that the lift setting to be within +/- 1%. The basis for SR 3.4.10.1, however, states that "the pressurizer safety valve setpoint is +/- 3% for OPERABILITY, and the valves are reset to +/- 1% during the Surveillance to allow for drift." Also, it should be noted that the +/- 1% tolerance is based on ASME Code, Section III, NB 7500 requirements which state, in part, "the set pressure tolerance plus or minus shall not exceed the following: 2 psi (15 kPa) for pressures up to and including 70 psi (480 kPa), 3% for pressures from 70 psi (480 kPa) to 300 psi (2 MPa), 10 psi (70 kPa) for pressures over 300 psi (2 MPa) to 1,000 psi (7 MPa), and 1% for pressures over 1,000 psi (7 MPa). The set pressure tolerance shall apply unless a greater tolerance is established as permissible in the Overpressure Protection Report (NB-7200)."

16-75

TS 3.4.10, Pressurizer Safety Valves.

Clarify the location of the overpressure protection analysis for the US-APWR.

NUREG-1431, Rev 3.1, TS LCO 3.4.10 BASES, APPLICABLE SAFETY ANALYSES section refers to the overpressure protection analysis in a separate topical report (WCAP-7769, Rev 1, June 1972) as a basis for the operation of three pressurizer safety valves. US-APWR TS LCO 3.4.10 BASES has no such reference to a separate overpressure protection analysis of the four pressurizer safety valves included in the design.

US-APWR Chapters 5 and 15 are cited in lieu of any separate analyses. Identify the specific Chapter locations that provide the appropriate analysis.

16-76

TS.3.4.11 - SDVs and Block Valves.

Justify not including verification the proposed SR that the SDVs and Block Valves are capable being powered from emergency power supplies.

This RAI is needed to confirm that SDV is powered from a safety-related AC power source, thus capable being powered from the emergency power supplies.

16-77

TS 3.4.12, Low Temperature Overpressure Protection (LTOP) System.

Discuss the NOTE regarding the applicability of LCO 3.0.4.b when entering MODE 4 in the ACTIONS Table for US-APWR TS LCO 3.4.12.

NUREG-1431 TS LCO 3.4.12 BASES, ACTIONS Section explains the NOTE accompanying the TS Action Table. The comparable section of the US-APWR TS BASES does not contain a similar explanation of the TS Action Table NOTE.

The US-APWR TS LCO 3.4.12 BASES eliminates an explanation of a NOTE contained in the STS (NUREG-1431) that appears to be applicable, without providing an alternate explanation.

16-78

TS 3.4.12, Low Temperature Overpressure Protection (LTOP) System.

Provide the US-APWR accumulator pressure that cannot exceed the LTOP limits if the accumulators are fully injected when the RCS is above the LTOP arming temperature specified in the PTLR.

NUREG-1431 identifies this pressure in the BASES, ACTIONS Section, C.1, D.1, and D.2. The comparable section of the US-APWR TS BASES does not specify a pressure, but leaves a blank space where the pressure should be inserted.

16-79

TS 3.4.12, Low Temperature Overpressure Protection (LTOP) System.

Justify required Actions E.1 and E.2 and their assigned Completion Times. Revise TS Bases B 3.4.12, as appropriate.

TS 3.4.12 Condition E is for one (out of two) RHR Suction relief valve inoperable. The specified Actions and Completion times (12 hours) are different from a comparable Condition in the STS (7 days). Single failure criteria is clearly addressed in the STS TS bases. No equivalent discussion is provided in the APWR TS bases.

This information is needed to ensure adequacy of specified TS requirements and completeness of supporting information in the TS bases.

16-80

TS 3.4.12, Low Temperature Overpressure Protection (LTOP) System.

Describe the analysis performed to support the required vent size of 2.6 sq. inch. Provide the valve in the reactor coolant system that is equivalent to this vent size and will be used by plant procedure to achieve system depressurization.

This RAI is needed to confirm the design information in the APWR FSAR to support TS requirements.

16-81

TS 3.4.12, Low Temperature Overpressure Protection (LTOP) System.

Confirm that the safety analyses exist to demonstrate that the US-APWR reactor vessel is adequately protected from exceeding 10CFR50, Appendix G P/T limits.

NUREG-1431 TS LCO 3.4.12 BASES, APPLICABLE SAFETY ANALYSES Section references FSAR, Chapter 15 as supporting analyses. The corresponding section of the US-APWR TS BASES does not supply a supporting reference.

The US-APWR TS BASES state that the reactor vessel is adequately protected against exceeding the 10CFR50, Appendix G P/T limits. Pr
ovide supporting documentation for this statement.

16-82

TS 3.4.12, Low Temperature Overpressure Protection (LTOP) System.

Clarify the temperature band of concern for RCS overpressurization as a result of accumulator discharge during US-APWR low temperature plant conditions.

NUREG-1431 TS LCO 3.4.12 BASES, APPLICABLE SAFETY ANALYSES Section identifies a narrower range of temperature concern for the effects of an accumulator discharge than the LCO. The comparable section of the US-APWR TS BASES does not discuss this temperature band.

NUREG-1431 BASES identifies a band of [175]°F and below as the temperature band of concern for an accumulator discharge while the TS LCO identifies a band of [275]°F and below. The US-APWR TS LCO 3.4.12 BASES provides no discussion regarding a narrower temperature band of concern for accumulator discharge or any supporting analyses. The LTOP arming temperature for the US-APWR is specified in the PTLR. However, this does not preclude an amplified discussion of the accumulator discharge.

16-83

TS 3.4.12, Low Temperature Overpressure Protection (LTOP) System.

Identify the analyses used to establish the temperature for US-APWR LTOP applicability.

NUREG-1431 TS LCO 3.4.12 BASES, APPLICABLE SAFETY ANALYSES Section states that fracture mechanics analyses are used to establish the temperature of LTOP applicability. The comparable section of the US-APWR TS BASES does not identify any similar analyses.

The US-APWR TS LCO 3.4.12 BASES eliminates a statement contained in the STS (NUREG-1431) that appears to be applicable, without providing an alternate explanation.

16-84

TS 3.4.12, Low Temperature Overpressure Protection (LTOP) System.

Resolve the following inconsistency in the discussion of RHR Suction Relief Valves in the TS Bases B 3.4.12, Applicable Safety Analyses section.

The last sentence of the first paragraph states "overpressure prevention is provided by two RHR suction relief valves." However, in the eighth paragraph one RHR suction relief valve is said to maintain RCS pressure to within the valve rated lift setpoint.

16-85

TS 3.4.12, Low Temperature Overpressure Protection (LTOP) System.

Confirm that the US-APWR RHR suction relief valves are considered active components.

NUREG-1431 TS LCO 3.4.12 BASES, APPLICABLE SAFETY ANALYSES Section states that the RHR suction relief valves are considered active components and constitute the worst case single active failure. The comparable section of the US-APWR TS BASES does not contain a similar statement.

The US-APWR TS LCO 3.4.12 BASES eliminates a statement contained in the STS (NUREG-1431) that appears to be applicable, without providing an alternate explanation.

16-86

TS 3.4.12, Low Temperature Overpressure Protection (LTOP) System.

Discuss the Required Action B.1 in the TS bases B 3.4.12.

The APWR TS bases B 3.4.12 discussion of Actions A.1 and B.1 addresses only SI pumps in Condition A but not the charging pump in Condition B.

This information is needed to ensure supporting information in the TS bases is complete.

16-87

TS 3.4.12, Low Temperature Overpressure Protection (LTOP) System.

Explain the safety injection pumps being rendered incapable of injecting into the RCS, including alternate methods of LTOP control for SR 3.4.12.1, SR 3.4.12.2, and SR 3.4.12.3.

NUREG-1431 TS LCO 3.4.12 BASES, SURVIELLANCE REQUIREMENTS Section discussion of SR 3.4.12.1, SR 3.4.12.2, and SR 3.4.12.3 provides an explanation of the actual means of rendering the required components incapable of injecting into the RCS. The comparable section of the US-APWR TS BASES does not contain a similar discussion.

The US-APWR TS LCO 3.4.12 BASES eliminates SR discussion contained in the STS (NUREG-1431) that appears to be applicable, without providing an alternate explanation.

16-88

TS 3.4.12, Low Temperature Overpressure Protection (LTOP) System.

Clarify the reference to the ASME, Boiler and Pressure Vessel Code, Section XI (Reference 4) cited twice in the US-APWR TS BASES, APPLICABLE SAFETY ANALYSES Section.

The identical language cited in NUREG-1431 actually refers to the FSAR, Chapter 15 analyses. There is no Chapter 15 reference listed in the US-APWR TS BASES, REFERENCE Section. The reference referred to twice for the US-APWR in the TS BASES, APPLICABLE SAFETY ANALYSES Section as Reference 4 is incorrect.

NOTE: In addition to the above mixed up in Reference 4 in the bases, the ASME Code Section XI has been replaced by the ASME Code for Operation and Maintenance (OM) for Nuclear Power Plants for IST requirements.

16-89

TS 3.4.12, Low Temperature Overpressure Protection (LTOP) System.

Demonstrate that the US-APWR conforms to 10 CFR 50.46 and 10 CFR 50, Appendix K regarding the consequences of a small break loss of coolant accident (LOCA) by limiting the number of OPERABLE safety injection (SI) pumps and charging pumps when SI actuation is enabled.

NUREG-1431 TS LCO 3.4.12 BASES, APPLICABLE SAFETY ANALYSES Section states that the consequences of a small break LOCA conforms to the above requirements by limiting the number of OPERABLE high-pressure injection pumps and charging pumps when SI actuation is enabled. The comparable section of the US-APWR TS BASES does not contain a similar statement.

The US-APWR TS LCO 3.4.12 BASES eliminates a statement contained in the STS (NUREG-1431) that appears to be applicable, without providing an alternate explanation.

16-90

LCO 3.4.13, RCS Operational LEAKAGE.

Clarify the differences in the US-APWR TS LCO 3.4.13 BASES, APPLICABLE SAFETY ANALYSES Section from the STS (NUREG-1431) regarding operational primary to secondary leakage.

NUREG-1431 LCO 3.4.13 BASES, APPLICABLE SAFETY ANALYSES Section assumes that operational primary to secondary leakage from all steam generators is 1 gallon per minute (1,440 gallons per day) or increases to 1 gallon per minute as an initial accident condition that ultimately results in steam discharge to the atmosphere. The comparable BASES Section in the US-APWR TS assumes that operational primary to secondary leakage from all steam generators is 600 gallons per day, which is less conservative than the STS.

The STS LCO 3.4.13 statement is identical to the US-APWR LCO 3.4.13 statement, but the discussion of operational primary to secondary leakage is substantially different. The US-APWR discussion also makes the statement that leakage through any one steam generator that is limited to less than or equal to 150 gallons per day is equivalent to the conditions assumed in the safety analysis. However, in NUREG-1431 this condition is described as significantly less than the conditions assumed in the safety analysis.

NUREG-1431 also contains information regarding RCS operational leakage associated with the steam line break accident and steam generator tube rupture as described in the FSAR, Chapter 15. The US-APWR TS has no such description.

16-91

LCO 3.4.13, RCS Operational LEAKAGE.

Indicate in the US-APWR TS LCO 3.4.13 BASES where FSAR, Chapter 15 is referenced.

FSAR, Chapter 15 is identified as Reference 3, but this reference is not identified in the body of the BASES text.

16-92

TS 3.4.14, RCS PIV Leakage.

Justify not including Condition C for the inoperability of the RHR suction valve interlock.

The omission of Condition C appears to be an editorial error. A discussion of Required Action C.1 and its associated Completion Time of 4 hours is provided in the TS Bases B 3.4.14. In adidtion, SR 3.4.14.2 is assigned to verify the operability of this interlock.

16-93

TS 3.4.14, RCS PIV Leakage.

Clarify the statement in the TS Bases B 3.4.14, Surveillance Requirements, SR 3.4.14.2 second paragraph "these SRs are modified by Notes allowing the RHR autoclosure function to be disabled."

This statement is a repeat of a statement in the STS Bases 3.4.14 for the discussion of SR 3.4.14.3 which verify the RHR autoclosure function in the Westinghouse design. STS SR 3.4.14.3 is not included in the APWR GTS and the autoclosure function is not described in APWR FSAR Section 5.4.7.

This is needed to ensure consistent information are provided in the TS Bases and the FSAR.

16-94

TS 3.4.14, RCS PIV Leakage.

Identify the failure consequences that could be associated with overpressure of the low pressure piping or components.

NUREG-1431 LCO 3.4.14 BASES, BACKGROUND Section indicates that the failure consequences could be a loss of coolant accident (LOCA) outside containment degrading the ability for low pressure injection. The comparable section of the US-APWR TS BASES does not contain a similar discussion.

The US-APWR design may preclude a LOCA outside containment. However, the US-APWR TS LCO 3.4.14 BASES eliminates discussion regarding the ability for low pressure injection contained in the STS (NUREG-1431) that appears to be applicable, without providing an alternate explanation.

16-95

TS 3.4.14, RCS PIV Leakage.

Justify that the PIV leakage at 0.5 gpm per nominal inch of valve size is acceptable. NUREG-1431 LCO 3.4.14 BASES, LCO Section describes the reasoning behind establishing the PIV leakage based on valve size. The comparable section of the US-APWR TS BASES does not contain a similar discussion.

The US-APWR TS LCO 3.4.14 BASES eliminates discussion regarding the PIV leakage limit contained in the STS (NUREG-1431) that appears to be applicable, without providing an alternate explanation.

16-96

TS 3.4.14, RCS PIV Leakage.

Clarify the discussion regarding the 900 psig design of the low pressure portion of the RHR system preventing any overpressurization failure of the RHR low pressure line, thereby preventing an intersystem LOCA.

NUREG-1431 TS LCO 3.4.14 BASES, APPLICABLE SAFETY ANALYSES Section allows for the possibility of an overpressurization failure, an intersystem LOCA, and subsequent risk for core melt

The US-APWR operates above 900 psig. The BASES discussion should be more specific as to the prevention of an overpressurization failure of the low pressure portion of the RHR system. The statement in the US-APWR BASES is not supported.

16-97

TS 3.4.16, RCS Specific Activity.

Justify the the APWR GTS, Section 3.4.16 not fully implementing TSTF-490, Revision 1; or revise Section 3.4.16 to fully reflect proper implementation of TSTF-490, if determined to be applicable.

Discussions in the TS bases indicate that TSTF-490 is incorporated into APWR GTS, but it does not seem to be fully implemented.
This additional information will be used to ensure that the applicable LCO correctly considered TSTF-490, as appropriate.

16-98

TS 3.4.16, RCS Specific Activity.

List a reference to 10 CFR 100.11 within the US-APWR TS LCO 3.4.16 BASES. The references cited in US-APWR TS LCO BASES are not consistent with the references cited in LCO BASES for LCO 3.4.16 in NUREG 1431.

10 CFR 50.34(b)(1) provides a reference to part 100 within the discussion of the FSAR content. However, a direct reference to the part 100, “Reactor Site Criteria,” is appropriate for this LCO.

16-99

TS 3.4.4, RCS Loops - MODES 1 and 2.

Justify not including the Westinghouse STS 3.4.19 which establishes exceptions to STS 3.4.4 requirements during Physics Testing at lower power below 25%.

In APWR Technical Report MUAP-07039, "Justifications for Deviations Between NUREG-1431 Rev. 3.1 and US-APWR Technical Specifications," MHI states "Natural Circulation Test is required at low power. This test is necessary for first plant of US-APWR. However, the Generic FSAR doesn't include this requirement," and further indicates that the natural circulation test is described in FSAR section 14.2.12.2.3.9.

Requirements of STS 3.4.19 should be provided in the APWR GTS, and thus in the PTS, to allow for exceptions to TS 3.4.4 during the performance of the natural circulation test eventhough it is only needed for the first APWR plant.