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STN-50-529 Palo Verde Nuclear Station, Unit 2, Arizona Publi 05000529
STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Publi 05000530
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SUBJECT: Forwards util response to NRC questions on proposed amend to TS LCOs 3.2.1,3.2.4 & associated bases re COLR.

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102-02700-RJS/RAB/NLT
October 22, 1993

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References: 1) Letter to W. F. Conway, Executive Vice President, Nuclear, APS, from C. M. Trammell, Project Manager, USNRC, dated March 16, 1993, "COLSS Action Statement - Palo Verde Nuclear Generating Station"

2) Letter to USNRC, from W. F. Conway, Executive Vice President, Nuclear, APS, dated November 20, 1992, "Proposed Amendment to Technical Specification Limiting Condition for Operation 3.2.1, 3.2.4, and the Associated Bases"

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station
Units 1, 2, and 3
APS Response to the NRC Questions on the Proposed Amendment to Technical Specification Limiting Condition for Operation 3.2.1, 3.2.4, and the Associated Bases
File: 93-056-026; 93-005-419.05

In Reference 1 the NRC requested that Arizona Public Service Company (APS) provide additional information in support of the proposed amendment to Technical Specification (TS) Limiting Condition for Operation (LCO) 3.2.1, 3.2.4, and the Associated Bases, submitted to the NRC in Reference 2. The enclosure to this letter provides APS' response to the NRC questions on the proposed amendment.

Please note that the PVNGS Units 1, 2, and 3 TSs have been amended since the Reference 2 submittal to reference the respective unit, cycle specific Core Operating Limit Report (COLR). Reference to the COLR has been implemented in the subject TS LCOs; however, reference to the COLR does not change the information provided or the requested replacement of the action statements as delineated in Reference 2.

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Should you have any questions, please contact Richard A. Bernier at (602) 393-5882.

Sincerely,

Ronald J. Stevens

Ronald J. Stevens, Director
Regulatory and Industry Affairs

RJS/RAB/NLT/rv

Enclosure

cc: W. F. Conway
B. H. Faulkenberry
J. A. Sloan
A. V. Godwin

ENCLOSURE

APS RESPONSE TO THE NRC QUESTIONS ON THE PROPOSED AMENDMENT TO TECHNICAL SPECIFICATION LIMITING CONDITION FOR OPERATION 3.2.1, 3.2.4, AND THE ASSOCIATED BASES

NRC QUESTION #1:

The last paragraph on page 6 of the submittal states: "If any adverse change in [departure from nucleate boiling ratio] DNBR margin or [linear heat rate] LHR is observed, the revised procedure will require operator action to restore DNBR margin and LHR to be within acceptable values." Provide the following: a description of the adverse change, including a discussion as to whether the change is conservative or non-conservative; a description of the required operator action; and a definition of "acceptable value."

APS RESPONSE:

A. An adverse change is defined as any change in plant conditions that produces a decrease in DNBR of more than 0.1 units or an increase in LHR of more than 0.2 kilowatt/foot (kW/ft) relative to the limits initially recorded.

These limits have been defined by statistically analyzing Core Protection Calculator (CPC) data taken at 100 percent power over a period of approximately 4 hours each in Unit 1 and Unit 3. These limits are sufficient to allow operation at full power with normal variations in the digital value of DNBR and LHR, and are sufficiently restrictive to detect an adverse change. In the event an adverse change occurs, plant procedures will require operation inside the Core Operating Limit Supervisor System (COLSS) out-of-service (OOS) DNBR and/or LHR limit lines.

By definition of adverse, action will only be taken in the event there is a change in DNBR or LHR in the non-conservative direction (i.e., a decrease in the margin to the limits).

B. Operator action will be required if any adverse change in DNBR margin or LHR is observed. The revised procedure will advise the operator(s) to initiate corrective action within 15 minutes to restore the DNBR and/or LHR to within the COLSS OOS LCO limits within 1 hour. The action(s) the operators will take are the same as those that would be taken to meet any of the applicable LCO limits. Operations personnel will take action to get DNBR and/or LHR to within the applicable LCO limits in accordance with the Power Operations procedure. This can be done in accordance with the procedure by down-powering the unit(s) either by boration or control rod insertion. If DNBR and/or LHR cannot be restored to within the COLSS OOS LCO limits, thermal power will be reduced to less than or equal to 20 percent rated thermal power within the next 6 hours, in accordance with the LCO ACTION.

C. In the context of the above referenced sentence, "acceptable value" is any value within the allowed operating limits as prescribed by the respective LCOs for the situation where COLSS is OOS. Once an adverse trend has been observed the trend values no longer apply.

NRC QUESTION #2:

The submittal mentions a surveillance test procedure for monitoring DNBR margin and LHR while COLSS is out of service. Is this surveillance test procedure a technical specification (TS) requirement? Provide a description of the change to this procedure as a result of this TS amendment request.

APS RESPONSE:

A. Surveillance test procedure 72ST-xRX03 (where x=1, 2, or 3, designating the appropriate unit), "DNBR/LHR/AZITILT/ASI WITH COLSS OUT OF SERVICE," is used to perform the surveillances required by TS Surveillance Requirements (SRs) 4.2.1.2, 4.2.3.2.b, 4.2.4.2, and 4.2.7.

B. The additional administrative requirement to monitor DNBR and LHR every 15 minutes will be performed as a part of the surveillance test procedure which is performed when COLSS is out of service (OOS). Note that these procedural changes only affect DNBR and LHR since the TSs for axial shape index and azimuthal power tilt are not affected. Upon approval of the proposed TS amendment described in Reference 2, APS will revise procedure 72ST-xRX03 to read similar to the following:

1. When COLSS becomes OOS, DNBR and LHR values will be recorded from each operable CPC channel within 15 minutes.

2. An adverse trend limit for DNBR and LHR limits will be calculated and recorded for each operable CPC channel to define the acceptable area of operation for each parameter. The adverse trend limit will be defined as a decrease in DNBR of 0.1 units or an increase in LHR of 0.2 kW/ft relative to the initial values recorded.

3. At least once per 15 minutes, DNBR and LHR values will be recorded from each operable CPC channel.

4. The DNBR and LHR values will be compared to the adverse trend limit calculated values. If an adverse trend is identified, then corrective action will be taken within 15 minutes to ensure that the COLSS OOS LCO criteria for the parameter(s) exhibiting an adverse trend (DNBR or LHR) is satisfied within 1 hour of adverse trend identification. This is described in Response B to Question 1 above.

5. A comparison of DNBR and LHR to the LCO limits will be made each time data is taken. If the DNBR or LHR LCO for COLSS OOS is met, (i.e., the more restrictive LCO limits can be met), the parameter will be monitored every 2 hours using CPCs in accordance with TS SR 4.3.2.1, and 15 minute monitoring will no longer be performed for that parameter. SR 4.3.2.1 only

applies for COLSS OOS when operating within the COLSS OOS limit lines (either the 4-hour allowance has been exceeded or the COLSS OOS limits can be met).

6. In the likely occurrence that no adverse trend is identified, appropriate action will be taken to ensure that both the DNBR and LHR TS LCOs are satisfied within 4 hours of the time that COLSS became OOS or that COLSS will be returned to service within 4 hours.

NRC QUESTION #3:

Provide a comparison of the proposed TS amendment with the revised standard TS.

APS RESPONSE:

A. The proposed TS amendment will change the PVNGS TSs to be more consistent with the restructured Combustion Engineering Owners Group Standard Technical Specifications (RSTS), Revision 0, dated September 28, 1992, as published in NUREG-1432. Although the proposed TS amendment does not change the TSs to conform to the new format of the RSTS, the technical attributes of the changes are very similar to the RSTS and are outlined below. Please note that additional variations in verbiage exists between the proposed TS amendment and the RSTS.

1. TS LCO 3/4.2.1, Linear Heat Rate, Proposed TS Amendment and the RSTS Similarities:

   a. Both require LHR to be restored to within the limit within 1 hour when COLSS is in service.

   b. Both require LHR to be restored to within the limit (using CPCs) within 4 hours when COLSS is OOS.

   c. Both require power to be reduced to less than or equal to 20 percent rated thermal power within 6 hours after the required actions and associated completion times are not met.

   d. Both provide in the Bases section the administrative requirement to monitor the parameter every 15 minutes during the 4 hour period when COLSS is OOS.

   e. The LCO statement in the RSTS references a COLR which specifies the LHR limit that shall not be exceeded. Reference to the COLR was not in the marked TS pages contained in the Reference 2

submittal; however, PVNGS TSs have been amended for all three units and now reference the COLR.

2. TS LCO 3/4.2.1, Linear Heat Rate, Proposed TS Amendment and the RSTS Differences:

   a. The LCO statement in the RSTS does not differentiate the methods used for monitoring LHR when COLSS is OOS and when COLSS is in service. APS believes that the RSTS would be more clearly written if it did include the acceptable methods for monitoring the LCO in the LCO statement. The addition of this information would make the RSTS for LHR consistent with RSTS for DNBR Margin. Therefore, APS has chosen to keep this information in the LCO statement.

3. TS LCO 3/4.2.4, DNBR Margin, Proposed TS Amendment and the RSTS Similarities:

   a. Both require DNBR to be restored to within the limit(s) within 1 hour when COLSS is in service.

   b. Both require DNBR to be restored to within the limit(s) (using CPCs) within 4 hours when COLSS is OOS.

   c. Both require power to be reduced to less than or equal to 20 percent rated thermal power within 6 hours after the required actions and associated completion times are not met.

   d. Both provide in the Bases section the administrative requirement to monitor the parameter every 15 minutes during the 4 hour period when COLSS is OOS.

   e. The LCO statement in the RSTS references a COLR which specifies the LHR limit that shall not be exceeded. Reference to the COLR was not in the marked TS pages contained in the Reference 2 submittal; however, PVNGS TSs have been amended for all three units and now reference the COLR.

4. TS LCO 3/4.2.4, DNBR Margin, Proposed TS Amendment and the RSTS Differences:

   a. No significant differences.

NRC QUESTION #4:

Referring to TS Surveillance Requirements 4.2.1.2 (LHR) and 4.2.4.2 (DNBR margin), what are the purposes of monitoring these limits once per 2 hours when COLSS is out of service?

APS RESPONSE:

The purpose of monitoring DNBR and LHR per TS SRs 4.2.1.2 and 4.2.4.2, when COLSS is OOS and operation is within the COLSS OOS limits, is to perform the function of observing DNBR and LHR to identify trends which would indicate a situation which would cause a power operating limit reduction. Two hours is considered to be a reasonable and sufficient amount of time to allow the operator to identify trends that would result in an approach to the LHR and DNBR limits while operating within the more restrictive COLSS OOS limit lines. When the 2-hour surveillance is in effect the plant is already within the more restrictive limits and the 15 minute monitoring, which is in effect before the more restrictive limits apply, will no longer be performed.

NRC QUESTION #5:

With respect to the compensatory actions which monitor DNBR margin and LHR at least 15 minutes to identify reduction in thermal margin when COLSS is out of service, is it more feasible to incorporate the 15 minutes monitoring in the ACTION statement?

APS RESPONSE:

APS does not consider incorporating the 15 minute requirement for monitoring DNBR margin and LHR in the ACTION statement to be more feasible. Additionally, APS does not consider incorporating the 15 minute requirement for monitoring in the SR to be necessary. There is no difference in the way the requirement to monitor DNBR and LHR every 15 minutes is treated (i.e., in both cases it would be covered procedurally), thus it is not more feasible to incorporate the 15 minute monitoring in the ACTION statement or as part of the SR.

As discussed in the enclosure to the Reference 2 submittal, the compensatory action of monitoring for an adverse trend will provide additional assurance that the actual DNBR margin and LHR do not exceed the safety limits. Plant parameters which could adversely affect the DNBR and LHR margins, such as cold leg temperature, core power, and reactor coolant system pressure, are monitored by operators using safety grade control room indications, and it is very unlikely that during steady state plant operation, a condition leading to an adverse trend would occur or would go undetected.