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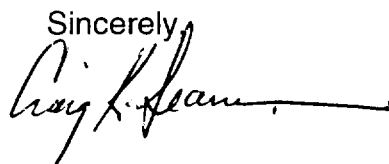
Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)  
Units 1, 2, and 3  
Docket Nos. STN 50-528/529/530  
Technical Specifications Bases Revision 8 Update**

Pursuant to PVNGS Technical Specification (TS) 5.5.14, "Technical Specifications Bases Control Program," Arizona Public Service Company (APS) is submitting the changes to the TS Bases incorporated into Revision 8. These changes are provided in the enclosure on Revision 8 pages with the changes identified by revision bars. Also enclosed are insertion instructions for the Revision 8 pages.

No commitments are being made to the NRC by this letter.

Should you have any questions, please contact Scott A. Bauer at (623) 393-5978.

Sincerely,  


CKS/SAB/RJR/

Enclosure

cc: E. W. Merschoff (all w/o enclosure)  
J. N. Donohew  
J. H. Moorman

A001

# **PVNGS Technical Specifications Bases Revision 8**

## **Insertion Instructions and Revised Pages**

**Insertion Instructions for TS Bases Revision 8**

**OPERATING LICENSE AND RELATED DOCUMENTS**

**VOLUME 2**

**TECHNICAL SPECIFICATION BASES**

**Remove**

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List of Effective Pages 1-7 Rev. 7

B 3.3.10-13/14

B 3.3.10-15/16

**Insert**

Cover Page Rev. 8

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B 3.3.10-15/16 Rev. 8/Rev. 0

***PVNGS***

*Palo Verde Nuclear Generating Station  
Units 1, 2, and 3*

# Technical Specification Bases

Revision 8  
March 9, 2001



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B 3.7.5-6	1		B 3.7.17-6	3	
B 3.7.5-7	1		B 3.8.1-1	0	
B 3.7.5-8	0		B 3.8.1-2	2	
B 3.7.5-9	0		B 3.8.1-3	2	
B 3.7.5-10	1		B 3.8.1-4	2	
B 3.7.6-1	0		B 3.8.1-5	2	
B 3.7.6-2	0		B 3.8.1-6	2	
B 3.7.6-3	5		B 3.8.1-7	2	
B 3.7.6-4	0		B 3.8.1-8	2	
B 3.7.7-1	0		B 3.8.1-9	2	
B 3.7.7-2	1		B 3.8.1-10	2	
B 3.7.7-3	1		B 3.8.1-11	2	
B 3.7.7-4	1		B 3.8.1-12	2	
B 3.7.7-5	1		B 3.8.1-13	2	
B 3.7.8-1	1		B 3.8.1-14	2	
B 3.7.8-2	1		B 3.8.1-15	2	
B 3.7.8-3	1		B 3.8.1-16	2	
B 3.7.8-4	1		B 3.8.1-17	2	
B 3.7.9-1	0		B 3.8.1-18	2	
B 3.7.9-2	1		B 3.8.1-19	2	
B 3.7.9-3	0		B 3.8.1-20	2	
B 3.7.10-1	0		B 3.8.1-21	2	
B 3.7.10-2	1		B 3.8.1-22	2	
B 3.7.10-3	1		B 3.8.1-23	6	
B 3.7.10-4	1		B 3.8.1-24	6	
B 3.7.11-1	0		B 3.8.1-25	6	
B 3.7.11-2	0		B 3.8.1-26	6	
B 3.7.11-3	1		B 3.8.1-27	6	
B 3.7.11-4	0		B 3.8.1-28	6	
B 3.7.11-5	0		B 3.8.1-29	6	
B 3.7.11-6	1		B 3.8.1-30	6	
B 3.7.12-1	1		B 3.8.1-31	6	
B 3.7.12-2	1		B 3.8.1-32	6	
B 3.7.12-3	0		B 3.8.1-33	6	
B 3.7.12-4	0		B 3.8.1-34	6	
B 3.7.13-1	0		B 3.8.1-35	6	
B 3.7.13-2	0		B 3.8.1-36	6	
B 3.7.13-3	0		B 3.8.1-37	6	
B 3.7.13-4	0		B 3.8.1-38	6	
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B 3.7.14-2	0		B 3.8.1-41	6	
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BASES

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LCO  
(continued)

18. Steam Generator Pressure

Steam Generator pressure indication is provided for Steam Generator pressure verification. At PVNGS Steam Generator Pressure Instrumentation consists of:

SGA-PT-1013A  
SGB-PT-1013B  
SGC-PT-1013C  
SGD-PT-1013D

SGA-PT-1023A  
SGB-PT-1023B  
SGC-PT-1023C  
SGD-PT-1023D

19. Reactor Coolant System-Subcooling Margin Monitoring

The RCS Subcooling Margin Monitor is a portion of the Inadequate Core Cooling (ICC) Instrumentation required by Item II.F.2 in NUREG-0737, the post-TMI Action Plan. The ICC instrumentation enhances the ability of the Operator to anticipate the approach to, and recovery from, ICC. At PVNGS RCS subcooling Margin Monitoring Instrumentation consists of:

QSPDS A  
QSPDS B

20. Reactor Coolant System Activity

The RCS Activity provides an indication of fuel cladding failure. This indicates degradation of the first of three barriers to fission product release to the environment. The three barriers to fission product release are (1) fuel cladding, (2) primary coolant pressure boundary, and (3) containment. At PVNGS the RCS Activity Instrumentation consists of:

SQA-RU-150  
SQB-RU-151

21. 22. HPSI System Flow

HPSI System flow indication is provided for HPSI flow verification.

(continued)

BASES

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LCO

21. 22 HPSI System Flow (continued)

HPSI System flow is a Type A variable because the operator must manually balance the HPSI flow between the hot and cold legs when switching from cold leg injection to a combined cold/hot leg injection in support of LOCA Long Term Cooling to prevent boron precipitation in stagnate core areas. Monitoring of these instruments is not required for initial operation of HPSI flow. At PVNGS, HPSI System Cold Leg Flow indication consists of:

J-SIB-FT-0311  
J-SIB-FT-0321  
J-SIA-FT-0331  
J-SIA-FT-0341

At PVNGS, HPSI System Hot Leg Flow indication consists of:

J-SIA-FT-0390  
J-SIB-FT-0391

Two channels are required to be OPERABLE for all but one Function. Two OPERABLE channels ensure that no single failure within the PAM instrumentation or its auxiliary supporting features or power sources, concurrent with failures that are a condition of or result from a specific accident, prevents the operators from being presented the information necessary for them to determine the safety status of the plant and to bring the plant to and maintain it in a safe condition following that accident.

In Table 3.3.10-1 the exception to the two channel requirement is Containment Isolation Valve Position.

Two OPERABLE channels of core exit thermocouples are required for each channel in each quadrant to provide indication of radial distribution of the coolant temperature rise across representative regions of the core. Power distribution symmetry was considered in determining the specific number and locations provided for diagnosis of local core problems. Plant specific evaluations in response to Item II.F.2 of NUREG-0737 (Ref. 3) have determined that any two thermocouple pairings per quadrant, satisfy these requirements. Two sets of two thermocouples in each quadrant ensure a single failure will not disable the ability to determine the radial temperature gradient.

(continued)

BASES

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LCO  
(continued)

For loop and steam generator related variables, the required information is individual loop temperature and individual steam generator level. In these cases two channels are required to be OPERABLE for each loop of steam generator to redundantly provide the necessary information.

In the case of Containment Isolation Valve Position, the important information is the status of the containment penetrations. The LCO requires one position indicator for each active containment isolation valve. This is sufficient to redundantly verify the isolation status of each isolable penetration either via indicated status of the active valve and prior knowledge of the passive valve or via system boundary status. If a normally active containment isolation valve is known to be closed and deactivated, position indication is not needed to determine status. Therefore, the position indication for valves in this state is not required to be OPERABLE.

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APPLICABILITY

The PAM instrumentation LCO is applicable in MODES 1, 2, and 3. These variables are related to the diagnosis and preplanned actions required to mitigate DBAs. The applicable DBAs are assumed to occur in MODES 1, 2, and 3. In MODES 4, 5, and 6, plant conditions are such that the likelihood of an event occurring that would require PAM instrumentation is low; therefore, PAM instrumentation is not required to be OPERABLE in these MODES.

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ACTIONS

Note 1 has been added in the ACTIONS to exclude the MODE change restriction of LCO 3.0.4. This exception allows entry into the applicable MODE while relying on the ACTIONS, even though the ACTIONS may eventually require plant shutdown. This exception is acceptable due to the passive function of the instruments, the operator's ability to monitor an accident using alternate instruments and methods, and the low probability of an event requiring these instruments.

Note 2 has been added in the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.10-1. The Completion Time(s) of the inoperable channel(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

(continued)

BASES

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ACTIONS  
(continued)

A.1

When one or more Functions have one required channel that is inoperable, the required inoperable channel must be restored to OPERABLE status within 30 days. The 30 day Completion Time is based on operating experience and takes into account the remaining OPERABLE channel (or in the case of a Function that has only one required channel, other non-Regulatory Guide 1.97 instrument channels to monitor the Function), the passive nature of the instrument (no critical automatic action is assumed to occur from these instruments), and the low probability of an event requiring PAM instrumentation during this interval.

B.1

This Required Action specifies initiation of actions in accordance with Specification 5.6.6, which requires a written report to be submitted to the Nuclear Regulatory Commission. This report discusses the results of the root cause evaluation of the inoperability and identifies proposed restorative Required Actions. This Required Action is appropriate in lieu of a shutdown requirement, given the likelihood of plant conditions that would require information provided by this instrumentation. Also, alternative Required Actions are identified before a loss of functional capability condition occurs.

C.1

When one or more Functions have two required channels inoperable (i.e., two channels inoperable in the same Function), one channel in the Function should be restored to OPERABLE status within 7 days. The Completion Time of 7 days is based on the relatively low probability of an event requiring PAM instrumentation operation and the availability of alternate means to obtain the required information. Continuous operation with two required channels inoperable in a Function is not acceptable because the alternate indications may not fully meet all performance qualification requirements applied to the PAM instrumentation.

(continued)