Palo Verde Nuclear Generating Station

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102-04458-CDM/SAB/RKR
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U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-37
Washington, DC 20555-0001

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2 and 3
Docket Nos. STN 50-528/529/530
Request for Amendment to Technical Specification Table 3.3.10-1, Post Accident Monitoring Instrumentation

Arizona Public Service Company (APS) requests an amendment to Technical Specification Table 3.3.10-1, Post Accident Monitoring Instrumentation, for each Palo Verde Nuclear Generating Station (PVNGS) Unit. The proposed amendment would add the High Pressure Safety Injection (HPSI) cold leg flow and hot leg flow instrumentation to this table. This change is required because this instrumentation meets the criteria for a Regulatory Guide 1.97, Revision 2, Type A, Category 1 variable.

Provided in the enclosure to this letter are the following sections which support the proposed Technical Specification amendment:

A. Need for the Amendment
B. Description of the Proposed Technical Specification Amendment
C. Purpose of the Technical Specification
D. Safety Analysis of the Proposed Technical Specification Amendment
E. No Significant Hazards Consideration Determination
F. Environmental Consideration
G. Revised Technical Specification Pages
H. Retyped Technical Specification Pages

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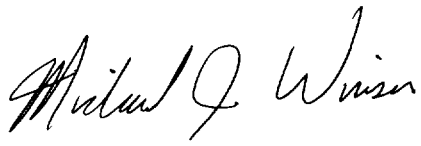
In accordance with the PVNGS Quality Assurance Program, the Plant Review Board and Offsite Safety Review Committee have reviewed and concurred with this proposed amendment. By copy of this letter, this submittal is being forwarded to the Arizona Radiation Regulatory Agency (ARRA) pursuant to 10 CFR 50.91(b)(1).

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,



CDM/SAB/RKR/kg

Enclosure

cc:	E. W. Merschoff	(NRC Region IV)	(all w/Enclosure)
	M. B. Fields	(NRR Project Manager)	
	J. H. Moorman	(NRC Resident Inspector)	
	A. V. Godwin	(ARRA)	

STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

I, Michael J. Winsor, represent that I am Director, Nuclear Engineering, Arizona Public Service Company (APS), that the foregoing document has been signed by me on behalf of APS with full authority to do so, and that to the best of my knowledge and belief, the statements made therein are true and correct.

Michael J. Winsor

Sworn To Before Me This 16 Day Of June, 2000.

Nora E. Meador
Notary Public

"OFFICIAL SEAL"
Nora E. Meador
Notary Public-Arizona
Maricopa County
My Commission Expires 4/6/2003

Notary Commission Stamp

ENCLOSURE

Proposed Amendment to Units 1, 2 and 3 Technical Specification Table 3.3.10-1

A. NEED FOR THE AMENDMENT

This proposed amendment will add the reclassified High Pressure Safety Injection (HPSI) cold leg flow loop instruments (JSIB-FLOOP0311/0321 and JSIA-FLOOP0331/0341) and hot leg flow loop instruments (JSIA-FLOOP0390 and JSIB-FLOOP0391) to Technical Specification Table 3.3.10-1, Post Accident Monitoring (PAM) Instrumentation.

Modifications to the HPSI system hot leg injection valve limit switch settings changed how flow balancing during a Loss of Coolant Accident (LOCA) would be accomplished. Prior to the modification, balancing was achieved using a control room key switch to fully open the hot leg injection valves to a predetermined limit setting on the valves. After the modification, operators are now required to manually throttle flow to balance the hot and cold legs of HPSI injection. Operating procedures direct the operators to perform this manual balancing at 2 to 3 hours post LOCA.

The modification, performed in 1991, should have changed the classification of these instruments from a Type D, Category 2 variable to a Type A, Category 1 variable. When recently re-reviewed, the correct determination was made to change the classification. Evaluation of the incorrect assessment is being completed under the PVNGS corrective action program.

HPSI flow indicators are required to support the operability of the Emergency Core Cooling System (ECCS). During the initial injection phase of a LOCA, flow indication is not required since the associated cold leg injection header orifices ensure proper cold leg injection flow balance. However, approximately 2 to 3 hours after a large break LOCA, simultaneous hot and cold leg flow is initiated. Hot and cold leg flow indication is required at that time so that average cold leg flow can be measured and hot leg injection valves can be throttled so that total hot leg flow equals total cold leg flow. This flow split is required to provide core flushing in order to prevent possible precipitation of boron in the core and its adverse affect on heat transfer.

Based on the current usage, the Regulatory Guide (RG) 1.97, Revision 2, classification for these instruments is being changed from a Type D, Category 2 variable to a Type A, Category 1 variable.

Definitions: Regulatory Guide 1.97, Revision 2

Type A Variable: Those variables that provide primary information needed to permit the control room operating personnel to take the specified manually controlled actions for which no automatic control is provided and that are required for the safety systems to accomplish their safety functions for the design basis accident events.

Type D Variable: Those variables that provide information to indicate the operation of individual safety systems and other systems important to safety.

Category 1: Provides the most stringent requirements and is intended for key variables.

Category 2: Provides less stringent requirements and generally applies to instrumentation designated for indicating system operating status.

B. DESCRIPTION OF THE PROPOSED TECHNICAL SPECIFICATION AMENDMENT

This proposed amendment will add the reclassified HPSI cold leg flow loop instruments (JSIB-FLOOP0311/0321 and JSIA-FLOOP0331/0341) and hot leg flow loop instruments (JSIA-FLOOP0390 and JSIB-FLOOP0391) to Technical Specification Table 3.3.10-1, Post Accident Monitoring (PAM) Instrumentation.

C. PURPOSE OF THE TECHNICAL SPECIFICATION

The primary purpose of the Post Accident Monitoring (PAM) instrumentation is to display plant variables that provide information required by the control room operators during accident situations. This information provides the necessary support for the operator to take required manual actions for safety systems to accomplish their safety functions for design basis events, for which no automatic control is provided.

As a result of modifications to the High Pressure Safety Injection (HPSI) hot leg injection valve limit switch settings, the HPSI cold leg flow loop and hot leg flow loop instrumentation are required to be reclassified from a RG 1.97, Revision 2, Type D, Category 2 variable to a RG 1.97, Revision 2, Type A, Category 1 variable.

This proposed amendment will add the reclassified HPSI cold leg flow loop instruments (JSIB-FLOOP0311/0321 and JSIA-FLOOP0331/0341) and hot leg flow loop instruments (JSIA-FLOOP0390 and JSIB-FLOOP0391) to Technical Specification Table 3.3.10-1, Post Accident Monitoring Instrumentation.

D. SAFETY ANALYSIS OF THE PROPOSED TECHNICAL SPECIFICATION AMENDMENT

The function of the Post Accident Monitoring (PAM) instrumentation is the continuous presentation of reliable information to the control room during the course of any design basis event or anticipated operational occurrence. As a result of a modification to the High Pressure Safety Injection (HPSI) system hot leg injection valve limit switches, the hot and cold loop flow instrumentation is now required to be operable during post LOCA long term cooling. Plant operators will now be required to use these instruments, approximately 2 to 3 hours post LOCA, while manually balancing flow

through the HPSI hot and cold leg injection lines to provide sufficient core flushing flow preventing boron precipitation in the reactor core

This proposed amendment will reclassify HPSI cold leg flow loop instruments (JSIB-FLOOP0311/0321 and JSIA-FLOOP0331/0341) and hot leg flow loop instruments (JSIA-FLOOP0390 and JSIB-FLOOP0391) from a Regulatory Guide (RG) 1.97, Revision 2, Type D, Category 2 variable to a Type A, Category 1 variable. To implement this change, a review of the design requirements associated with Category 1 and Category 2 variables was performed.

RG 1.97, Revision 2, Section 1.3.1, Design and Qualification Criteria - Category 1 and Section 1.3.2, Design and Qualification Criteria Category - 2 were compared against each other and then to the actual design and installation of these instruments.

The criteria compared included 1) environmental qualification 2) redundancy, 3) power supplies, 4) availability, 5) indication, and 6) recording of instrumentation readout. It was determined that because the original design requirements for these instrument loops included consideration for equipment qualification, quality assurance, and redundancy these instruments meet the RG 1.97, Revision 2, requirements for a Type A, Category 1 variable with one exception. Category 1 requirements also include provisions for a recording device in the control room to provide monitoring and trending capability.

The following RG 1.97, Revision 2, requirements apply to display and recording of data:

- For a Category 1 instrument, continuous indication, which may be via recording, should be provided.
- For a Category 1 instrument, recording of instrumentation readout information should be provided. At least one channel should be displayed on a direct-indicating or recording device.
- For both Category 1 and 2 instruments, where direct and immediate trend or transient information is essential for operator information or action, the recording should be continuously available on dedicated recorders. Otherwise, it may be continuously updated, stored in computer memory, and displayed on demand. Recording of displayed accident monitoring variables may be provided through non-safety related computer-based equipment. If direct or immediate trend or transient information is essential for operator action, the information should be continuously available on a dedicated display.

Each of the HPSI flow loops contains a direct indicating device in the Control Room, but does not include any safety related recording device. These flow loops are used during initial balancing of injection water into the hot and cold legs, which occurs 2 to 3 hours post LOCA, and is accomplished by operator adjustment of valve position. Direct and immediate trending information is not required by the operator

to complete this action. Therefore, there is no need for continuous recording of the indicated values. If desired, recording of these variables can be accomplished by the operators through the Emergency Response Facility Data Acquisition and Display System (ERFDADS) by assigning them to non-safety-related control room recorders via the plant computer.

The use of ERFDADS as the recording function associated with the HPSI flow loops is discussed in a note in Table 1.8-1 in the Updated Final Safety Analysis Report (UFSAR). This is consistent with other PAM instrumentation clarifications.

This proposed amendment does not change, degrade, or prevent actions described or assumed in any accident. It will not alter any assumptions previously made in evaluating radiological consequences or affect any fission product barriers. It does not increase any challenges to safety systems. Therefore, this proposed amendment would not increase or have any impact on the consequences of events described and evaluated in Chapter 6 or Chapter 15 of the PVNGS UFSAR.

E. NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission has provided standards for determining whether a significant hazards consideration exists as stated in 10 CFR 50.92. A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with a proposed amendment would not: (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) Involve a significant reduction in a margin of safety. A discussion of these standards as they relate to this amendment request follows:

Standard 1 -- Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

No. The proposed change to TS Table 3.3.10-1, by adding the High Pressure Safety Injection (HPSI) hot and cold leg flow instrumentation, does not involve a significant increase in the probability or consequences of an accident previously evaluated because it does not represent a change to design configuration or operation of the plant. The amendment does not affect the operability or availability of the HPSI system or any other safety related equipment. Additionally, there are no effects on the failure modes associated with the probability of a failure of a system important to safety.

Standard 2 -- Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

No. The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated because

the change does not impact the response or operation of the plant. The availability and operability of the plant equipment is unchanged, as the design requirements have not changed.

The proposed change revises only the Regulatory Guide (RG) 1.97, Revision 2, classification of the HPSI hot leg and cold leg flow indication loops. Regardless of RG classification the instruments remain seismically, electrically, and otherwise qualified for the application. Hence, the revised classification will not subject these components to new modes of operation that could result in a new failure mode, thus initiating an accident of a different type.

Standard 3 -- Does the proposed change involve a significant reduction in a margin of safety?

No. This proposed amendment does not involve a significant reduction in the margin of safety because neither of the following PVNGS Technical Specification (TS) Bases (B 3.5.3 ECCS – Operating, or B 3.3.10 Post Accident Monitoring (PAM) Instrumentation) is changed by the proposed amendment.

TS Bases B 3.5.3 ECCS – Operating - states that the function of the ECCS is to provide core cooling and negative reactivity to ensure that the reactor core is protected after any of the following accidents:

a. Loss of Coolant Accident (LOCA);

b. Control Element Assembly (CEA) ejection accident;

c. Loss of secondary coolant accident, including uncontrolled steam release or loss of feedwater; and

d. Steam Generator Tube Rupture (SGTR).

Changing the RG 1.97 Type and Category of these instruments does not affect the ability of the ECCS to provide core cooling and negative reactivity during these accidents.

TS Bases B 3.3.10 - Post Accident Monitoring (PAM) Instrumentation - states that the primary purpose of PAM instrumentation is to display plant variables that provide information required by the control room operators during accident situations. This information provides the necessary support for the operator to take the manual actions, for which no automatic control is provided, that are required for safety systems to accomplish their safety functions for Design Basis Events.

The OPERABILITY of PAM instrumentation ensures that there is sufficient information available on selected plant parameters to monitor and assess plant status and behavior following an accident.

These Type A variables are required to be included in this LCO because they provide the primary information required to permit the control room operator to take specific manually controlled actions, for which no automatic control is provided, that are required for safety systems to accomplish their safety functions for Design Basis Accidents (DBAs). The addition of these instruments supports this TS Bases. Therefore, the proposed change does not involve a significant reduction in the margin of safety.

Based on the responses to these three criterions, APS has concluded that the proposed amendment involves no significant hazard consideration.

F. ENVIRONMENTAL CONSIDERATION

APS has determined that the proposed amendment involves no changes in the amount or type of effluent that may be released offsite, and results in no increase in individual or cumulative occupational radiation exposure. As described above, the proposed TS amendment involves no significant hazards consideration and, as such, meets the eligibility criteria for categorical exclusion set forth in 10CFR 51.22(c)(9).

G. REVISED TECHNICAL SPECIFICATIONS PAGES

Attachment 1 Units 1, 2, and 3: Page 3.3.10-4

H. RETYPED TECHNICAL SPECIFICATION PAGES

Attachment 2 Units 1, 2, and 3: Page 3.3.10-4

ATTACHMENT 1
REVISED TECHNICAL SPECIFICATIONS PAGE

Units 1, 2, and 3: Page 3.3.10-4

99-T010

Table 3.3.10-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION E.1
1.	Logarithmic Neutron Flux	2	F
2.	Reactor Coolant System Hot Leg Temperature	2 per loop	F
3.	Reactor Coolant System Cold Leg Temperature	2 per loop	F
4.	Reactor Coolant System Pressure (wide range)	2	F
5.	Reactor Vessel Water Level	2(d)	G
6.	Containment Sump Water Level (wide range)	2	F
7.	Containment Pressure (wide range)	2	F
8.	Containment Isolation Valve Position	2 per penetration flow path(a)(b)	F
9.	Containment Area Radiation (high range)	2	G
10.	Containment Hydrogen Monitors	2	F
11.	Pressurizer Level	2	F
12.	Steam Generator Water Level (wide range)	2 per steam generator	F
13.	Condensate Storage Tank Level	2	F
14.	Core Exit Temperature – Quadrant 1	2(c)	F
15.	Core Exit Temperature – Quadrant 2	2(c)	F
16.	Core Exit Temperature – Quadrant 3	2(c)	F
17.	Core Exit Temperature – Quadrant 4	2(c)	F
18.	Steam Generator Pressure	2 per steam generator	F
19.	Reactor Coolant System Subcooling Margin Monitoring	2	F
20.	Reactor Coolant System Activity	2	G

(a) Not required for isolation valves whose associated penetration is isolated by at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) A channel consists of two or more core exit thermocouples.

(d) A channel is eight sensors in a probe. A channel is OPERABLE if four or more sensors, two or more in the upper four and two or more in the lower four, are OPERABLE.

21.	High Pressure Safety Injection Cold Leg Flow	2 per loop	F
22.	High Pressure Safety Injection Hot Leg Flow	2	F

ATTACHMENT 2
RETYPED TECHNICAL SPECIFICATION PAGE

Units 1, 2, and 3: Page 3.3.10-4

Table 3.3.10-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

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3. Reactor Coolant System Cold Leg Temperature	2 per loop	F
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5. Reactor Vessel Water Level	2(d)	G
6. Containment Sump Water Level (wide range)	2	F
7. Containment Pressure (wide range)	2	F
8. Containment Isolation Valve Position	2 per penetration flow path(a)(b)	F
9. Containment Area Radiation (high range)	2	G
10. Containment Hydrogen Monitors	2	F
11. Pressurizer Level	2	F
12. Steam Generator Water Level (wide range)	2 per steam generator	F
13. Condensate Storage Tank Level	2	F
14. Core Exit Temperature - Quadrant 1	2(c)	F
15. Core Exit Temperature - Quadrant 2	2(c)	F
16. Core Exit Temperature - Quadrant 3	2(c)	F
17. Core Exit Temperature - Quadrant 4	2(c)	F
18. Steam Generator Pressure	2 per steam generator	F
19. Reactor Coolant System Subcooling Margin Monitoring	2	F
20. Reactor Coolant System Activity	2	G
21 High Pressure Safety Injection Cold Leg Flow	2 per loop	F
22. High Pressure Safety Injection Hot Leg Flow	2	F

(a) Not required for isolation valves whose associated penetration is isolated by at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

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