



Arizona Public Service Company  
P.O. BOX 53999 • PHOENIX, ARIZONA 85072-3999

WILLIAM L. STEWART  
EXECUTIVE VICE PRESIDENT  
NUCLEAR

102-03570-WLS/AKK/NLT  
December 20, 1995

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  
Proposed Amendment to Technical Specification  
Sections 2.2.1 and 3.3.2**

Pursuant to 10 CFR 50.90, Arizona Public Service Company (APS) submits herewith a proposed amendment to Technical Specification Sections 2.2.1, Reactor Trip Setpoints, and 3.3.2, Engineered Safety Features Actuation System. The proposed amendment would reduce the setpoint for main steam isolation signal (MSIS) and reactor trip on low steam generator pressure.

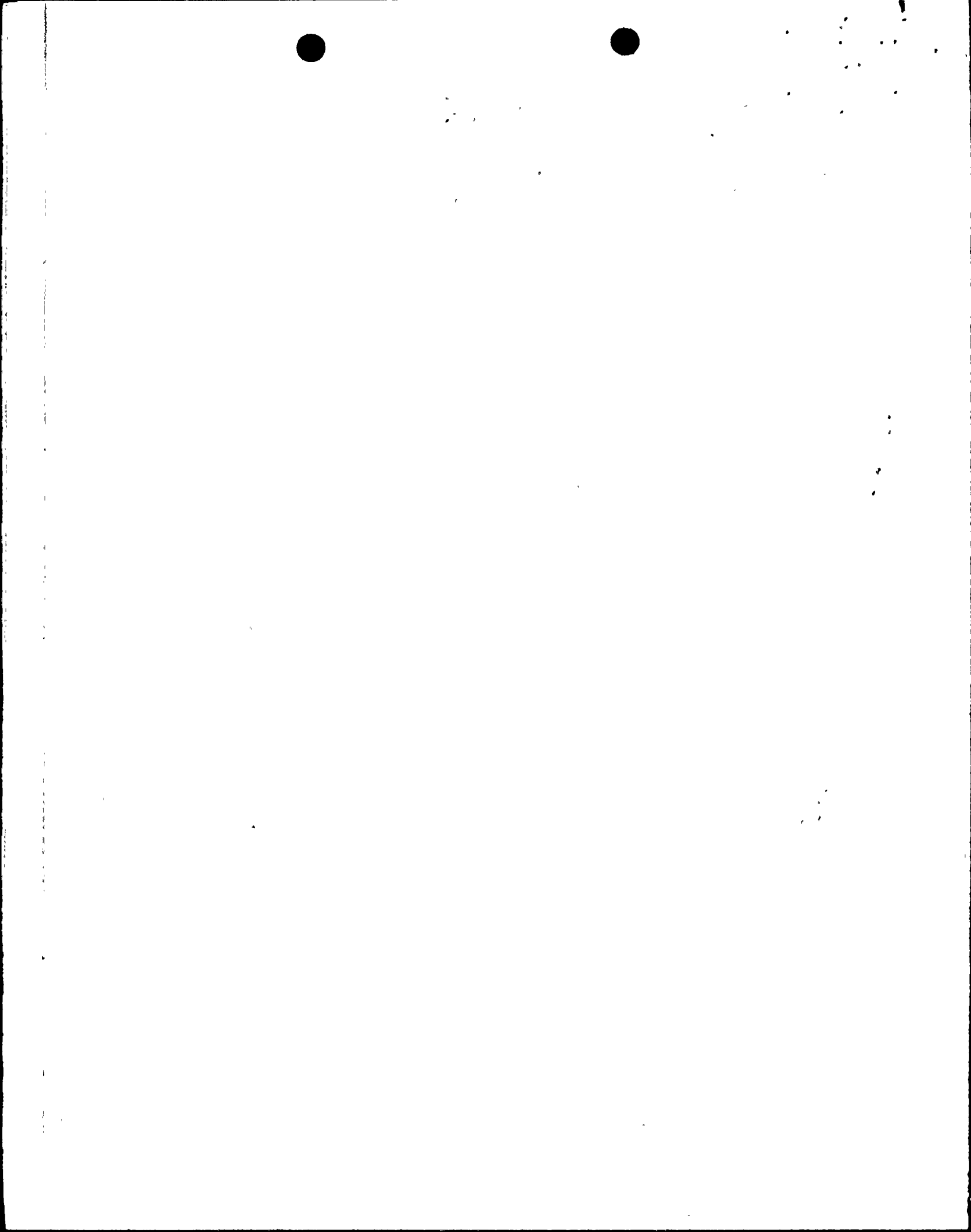
This proposed amendment is requested to provide additional operational margin between normal steam generator pressure and the MSIS and reactor trip setpoints. The current setpoint is  $\geq 919$  psia (allowable  $\geq 911$  psia) and since the recent reduction in hot leg temperature, normal steam generator pressure at full power is approximately 970 psia. The proposed amendment will lower the setpoint to  $\geq 895$  psia (allowable  $\geq 890$  psia) providing an additional 24 psi of margin between normal operation and the trip setpoint. The increased margin will enhance the safety of operation by decreasing the possibility of an unnecessary MSIS. The analytical setpoints used in the safety analysis remain unchanged. The proposed change in setpoint is a result of a new calculation performed during the Palo Verde Nuclear Generating Station Setpoint Verification Program. The new calculation resulted in a reduced overall instrument uncertainty and thus justified a lower instrument setpoint.

Provided in the enclosure to this letter are the following:

- A. Description of the Proposed Amendment
- B. Purpose of the Technical Specification
- C. Need for the Technical Specification Amendment
- D. Safety Analysis of the Proposed Technical Specification Amendment

270047  
9512270122 951220  
PDR ADDCK 05000528  
P PDR

ADD 11



U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Proposed Amendment to TS 2.2.1 & 3.3.2  
Page 2

- E. No Significant Hazards Consideration Determination
- F. Environmental Consideration
- G. Marked-up Technical Specification Change Pages

In accordance with Technical Specification Section 6.5, the Plant Review Board and Offsite Safety Review Committee have reviewed and concur with this proposed amendment. It is requested that this proposed amendment become effective within 45 days of issuance by the NRC.

Pursuant to 10 CFR 50.91(b)(1), a copy of this request has been forwarded to the Arizona Radiation Regulatory Agency (ARRA). Should you have any questions, please contact Scott A. Bauer at (602) 393-5978.

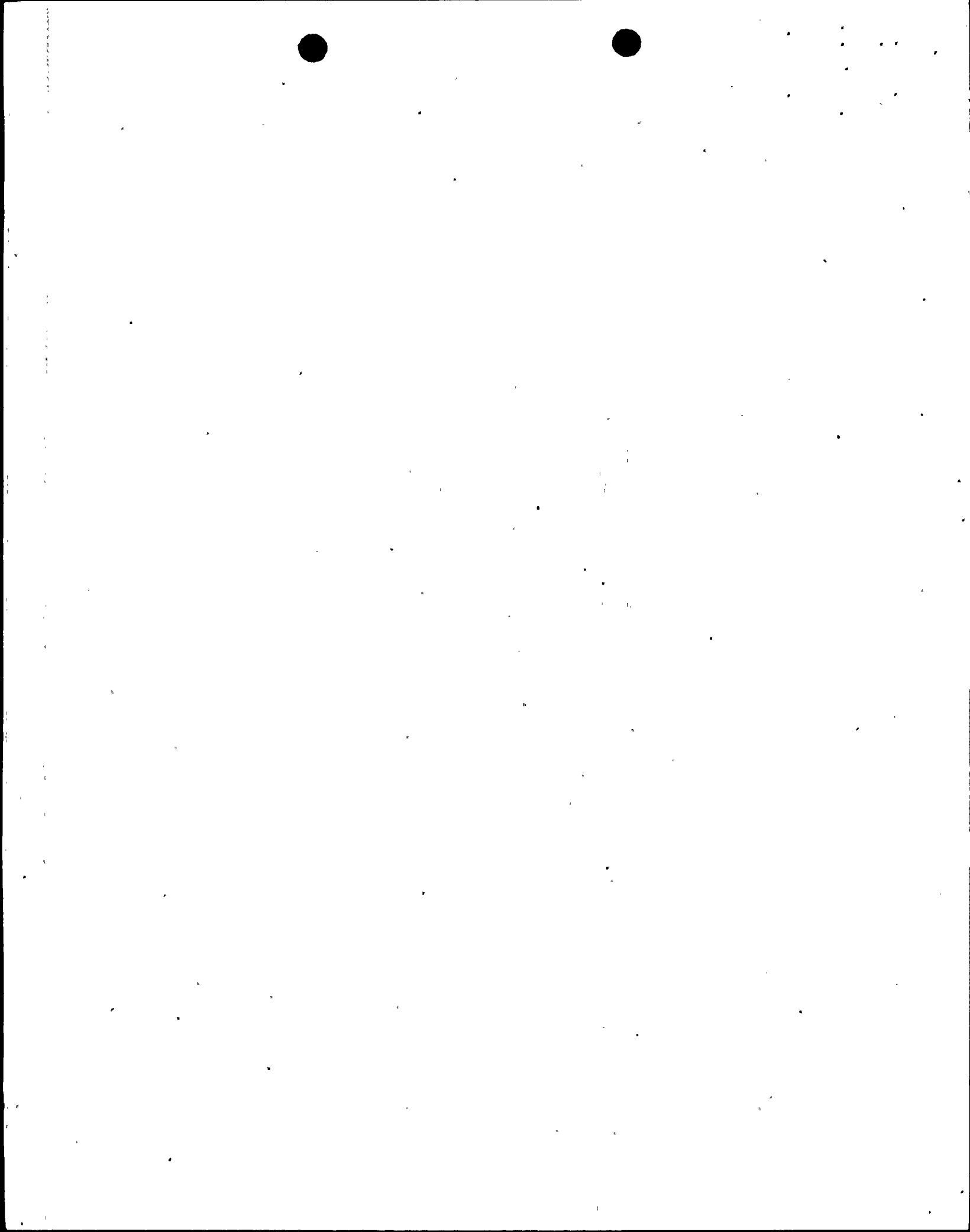
Sincerely,

*Gregg A. Dunbar for WLS*

WLS/AKK/NLT/rv

Enclosure

cc: L. J. Callan  
K. E. Perkins  
B. E. Holian  
K. E. Johnston  
A. V. Godwin (ARRA)




STATE OF ARIZONA        )  
                                  ) ss.  
COUNTY OF MARICOPA    )

I, G. R. Overbeck, represent that I am Vice President - Nuclear Support, 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.

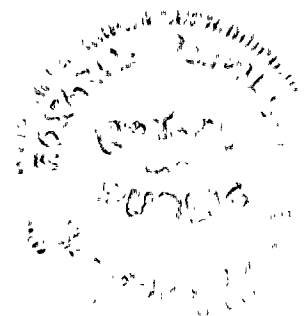
  
G. R. Overbeck

Sworn To Before Me This 20 Day Of December, 1995.

  
Notary Public

My Commission Expires

My Commission Expires June 12, 1997



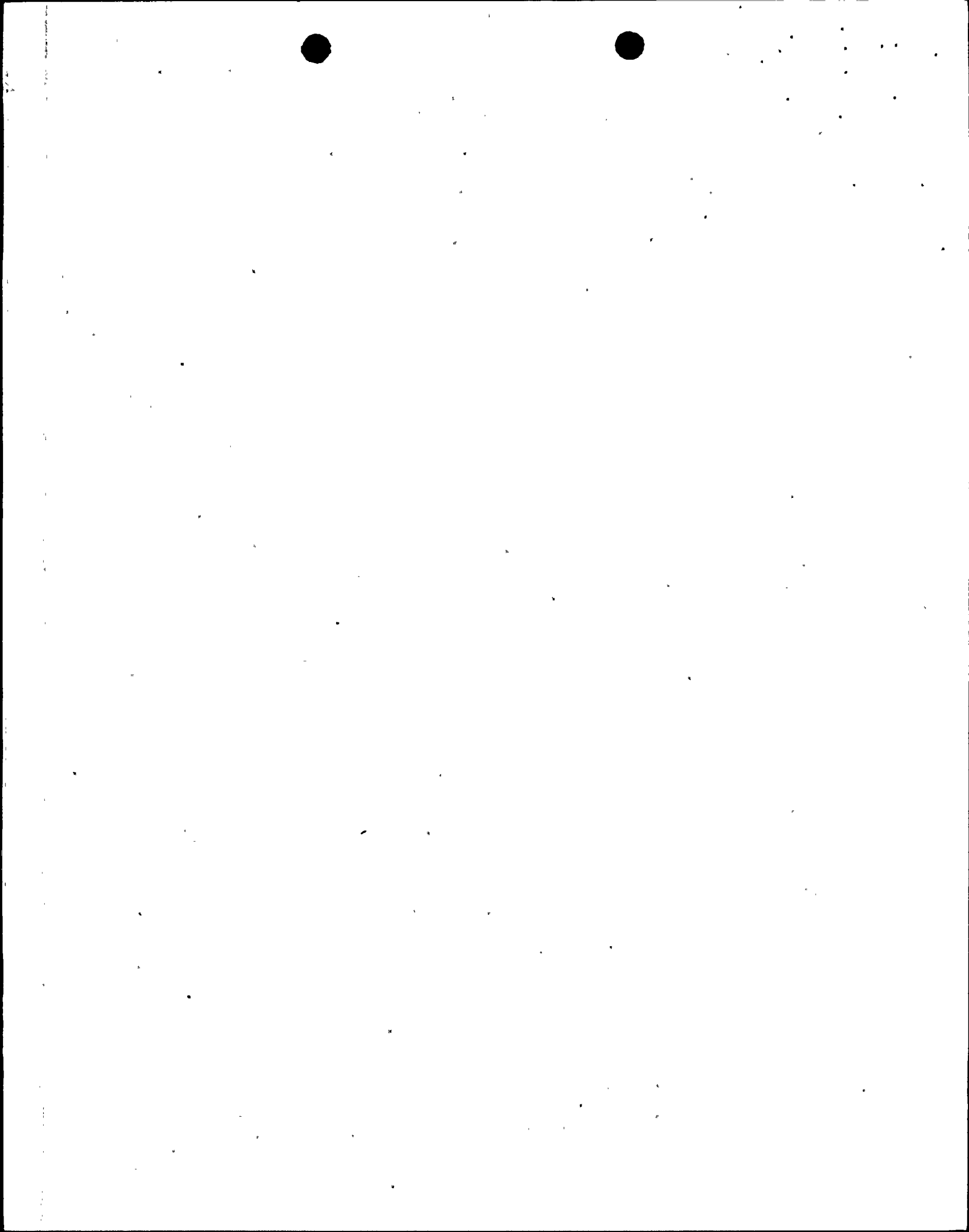


**ENCLOSURE**

**PROPOSED AMENDMENT TO TECHNICAL SPECIFICATION**

**SECTIONS 2.2.1 and 3.3.2**



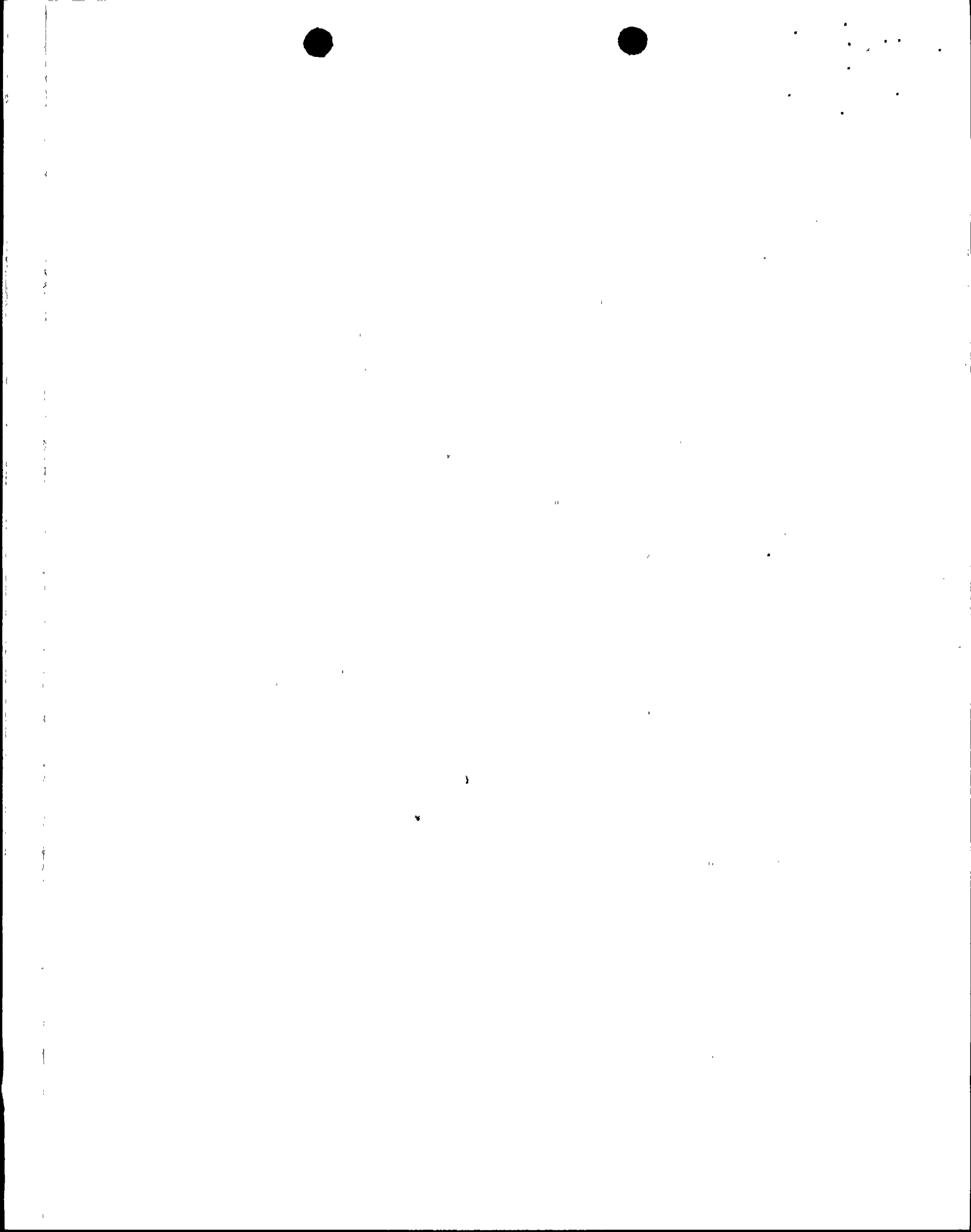


## A. DESCRIPTION OF THE PROPOSED AMENDMENT

Arizona Public Service Company (APS) proposes to change the low steam generator pressure reactor trip setpoint and engineered safety feature actuation system main steam isolation signal setpoint to  $\geq 895$  psia (allowable  $\geq 890$  psia) from the current value of  $\geq 919$  psia (allowable  $\geq 911$  psia). The change is a result of the Palo Verde Setpoint Verification Program which recalculated the instrument uncertainties associated with the setpoint. The analytical setpoints used in the safety analysis remain unchanged. Two separate analytical limits are utilized. For line breaks outside containment, the analytical limit is 820 psia. For line breaks inside containment, the analytical limit is 810 psia. The proposed setpoint of  $\geq 895$  psia ensures that a reactor trip and MSIS engineered safety feature actuation will occur prior to reaching the analyzed low steam generator pressure values even under the worst-case accident conditions.

The new uncertainty calculation, which reduced the overall uncertainties associated with this instrument by utilizing more realistic assumptions for accident and post-accident conditions, remains conservative. For example, the calculation assumes a worst-case steam line break for containment environment assumptions and conservatively does not credit the fact that the transmitters are physically located away from the steam lines or that the transmitters are mounted to a very large heat sink. The setpoint calculation assumes the instrument is required for 30 minutes and conservatively does not take credit for the high containment pressure trip limiting temperature. To achieve more realistic results, the temperature at the instrument during the postulated accident is utilized in lieu of the peak containment temperature. Additionally, the calculation assumes a harsh environment for only the period of time in which the plant protection system instrument is required to mitigate the accident.

An additional change is proposed to the Unit 1 Technical Specifications to correct a typographical error in Notation 3 of Table 3.3-4, Engineered Safety Features Actuation System Instrumentation Trip Values. The purpose of the notation is to provide guidance on operation below the steam generator pressure trip setpoint while in Modes 3-4. However, Notation 3 currently indicates Modes 3-6. This is not consistent with the notation in Units 2 and 3 Technical Specifications, or the applicability of the MSIS Engineered Safety Features Actuation System Instrumentation, which is not required below Mode 4, as set forth in Table 3.3-3. Table 3.3-3, Notation b, also provides guidance on operation below the steam generator pressure trip setpoint while in Modes 3-4. Additionally, steam generator operability is not required in Modes 5 and 6, hence, the typographical error should be corrected.



**B. PURPOSE OF THE TECHNICAL SPECIFICATION**

The operability of the reactor protective and Engineered Safety Features Actuation Systems (ESFAS) instrumentation ensures that the ESFAS actuation action and reactor trip will be initiated when the parameter monitored by each channel or combination thereof reaches its setpoint. This is required to provide the overall reliability, redundancy, and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the safety analyses.

In the case of the MSIS, the technical specification setpoint ensures that a reactor trip and ESFAS actuation will occur prior to steam generator pressure reaching the values used in the safety analysis. The ESFAS actuation isolates the steam generators by closing the main feedwater and main steam isolation valves. These actions serve to mitigate the effects of excess steam demand events by isolating the steam generators and shutting down the reactor through the generation of a reactor trip.

**C. NEED FOR THE TECHNICAL SPECIFICATION AMENDMENT**

To minimize degradation of the steam generators Palo Verde reduced Reactor Coolant System hot leg temperature from 621°F to 611°F. This change resulted in a lowering of the full power steam generator pressure from 1070 psia to 970 psia. The current MSIS setpoint of  $\geq 919$  psia is now 51 psi from the normal full power steam generator pressure versus the previous margin of 151 psi. This amendment request will increase the current margin by approximately 24 psi increasing the margin from normal operating pressure to the actuation setpoint to 75 psi. This reduces the possibility of unnecessary reactor trips and MSIS actuations.

**D. SAFETY ANALYSIS OF THE PROPOSED TECHNICAL SPECIFICATION AMENDMENT**

The proposed amendment changes the instrumentation setpoint for the reactor trip and MSIS actuation on low steam generator pressure. The proposed setpoint was determined in accordance with Instrument Society of America Standard SP67.04 which is endorsed through Revision 2 of Regulatory Guide 1.105 "Instrument Setpoints." The new setpoint meets the same criteria as the original setpoint in that it ensures a reactor trip and MSIS actuation will occur prior to steam generator pressure reaching the value assumed in the safety analysis even under worst-case environmental conditions.

The proposed setpoint change does not affect any safety analysis results since the analytical setpoint remains unchanged. Two separate analytical limits are utilized. For line breaks outside containment, the analytical limit is 820 psia. For line breaks inside containment, the analytical limit is 810 psia. The proposed setpoint of  $\geq 895$  psia ensures that a reactor trip and MSIS engineered safety feature actuation will occur



prior to reaching the analyzed low steam generator pressure values even under the worst-case accident conditions.

Although the new uncertainty calculation reduced the overall uncertainties associated with this instrument by utilizing more realistic assumptions regarding accident and post-accident conditions, the calculation remains conservative. For example, the calculation conservatively assumes a worst-case steam line break for containment environment assumptions. Additionally, the calculation does not credit the fact that the transmitters are physically located away from the steam lines or that the transmitters are mounted to a very large heat sink. The setpoint calculation assumes the instrument is required for 30 minutes and conservatively does not take credit for the high containment pressure trip limiting temperature. To achieve more realistic results, temperatures at the instrument during the postulated accident were utilized in lieu of the peak containment temperature. Additionally, the calculation assumes a harsh environment for only the period of time in which the plant protection system instrument is required to mitigate the accident.

#### 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 a 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; (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 amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

The proposed amendment does not involve any change to the method of operation of any plant equipment that is used to mitigate the consequences of an accident. The proposed change only affects the instrument setpoint for steam generator low pressure reactor trip and MSIS actuation. The proposed setpoint meets the requirement of ensuring a reactor trip and MSIS actuation prior to steam generator pressure reaching the analytical limits even under worst-case accident conditions. Thus, the proposed change does not involve a significant increase in the probability of an accident previously evaluated.

The proposed amendment does not alter any of the assumptions or bounding conditions currently in the UFSAR and meets the requirement of ensuring a reactor trip and MSIS actuation prior to steam generator pressure reaching the



analytical setpoint even under worst-case accident conditions. As a result, the proposed amendment does not involve a significant increase in the consequences of an accident previously evaluated.

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

The proposed change does not involve any change to the method of operation of any plant equipment that is used to mitigate the consequences of an accident. Accordingly, no new failure modes have been defined for any plant system or component important to safety nor has any new limiting failure been identified as a result of the proposed change. The intent of the proposed change is to increase the margin between normal operating parameters and trip setpoints. This minimizes the possibility of unnecessary challenges to safety systems improving the safety of operation. The method of protecting the facility for an excess steam demand event remains unchanged and therefore, the amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

The proposed change is the implementation of a setpoint value which was derived using methodologies endorsed by Revision 2 of NRC Regulatory Guide 1.105, Instrument Setpoints." The new setpoint ensures that sufficient margin exists below the full load operating value for steam pressure so as not to interfere with normal plant operation, but still high enough to provide the required protection (reactor trip and main steam line isolation) in the event of an excessive steam demand event. The new setpoint ensures that safety margins are maintained within the results of existing calculations. The margin of safety between the analyzed trip value and the point at which safety analysis results become unacceptable remain unchanged since the analytical setpoints are not affected by the amendment. The new setpoint resulted from the reduced instrument uncertainty and will ensure that the reactor trip and MSIS actuation on low steam generator pressure will occur before the analyzed value and hence, this change does not involve a significant reduction in the margin of safety.

## F. **ENVIRONMENTAL CONSIDERATION**

The proposed amendment changes the setpoint for low steam generator pressure reactor trip and MSIS actuation. It does not affect the assumptions of the safety analysis. The proposed Technical Specification amendment involves





no changes in the amount or type of effluent that may be released off site. In addition, there is no increase in individual or cumulative radiation exposure.

G. MARKED-UP TECHNICAL SPECIFICATION PAGES

UNIT 1

2-3  
3/4 3-25  
3/4 3-27

UNIT 2

2-3  
3/4 3-25

UNIT 3

2-3  
3/4 3-25