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SUBJECT: Application for amends to Licenses NPF-41, NPF-51 & NPF-74 changing monitoring requirements in waste gas holdup sys.

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161-00924-EEVB/PGN
April 6, 1988

Docket Nos. STN 50-528/529/530

U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

ATTN: Document Control Desk

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2 and 3
Technical Specification Amendment -
Sections 3/4.3.3.8 and 3/4.11.2.5
File: 88-F-005-419.05; 88-A-056-026

Attached please find proposed changes to the PVNGS Units 1, 2 and 3 Technical Specifications. The provided change is to modify the monitoring requirements for hydrogen and oxygen in the waste gas holdup system.

Enclosed with the amendment request package, are the following:

A. Description of the Technical Specification Amendment Request.
B. Purpose of the Technical Specification.
C. Need for the Technical Specification Amendment.
D. Basis for Proposed No Significant Hazards Consideration Determination.
E. Safety Evaluation for the Amendment Request.
F. Environmental Impact Consideration Determination.
G. Marked-up Technical Specification Change Pages.

Once issued, the Technical Specification amendment will be implemented within thirty days of the effective date.

By copy of this letter, we are also forwarding the proposed changes to the appropriate state agency.

In accordance with the requirements of 10CFR170.12(c), the license amendment application fee of $150.00 is being forwarded to the Facilities Program Coordinator of LFMB.

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If you have any questions, please call A. C. Rogers at (602) 371-4041.

Very truly yours,

E. E. Van Brunt, Jr.
Executive Vice President
Project Director

EEVB/PGN/ls
Attachments

cc: A. C. Gehr (all w/a)
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E. A. Licitra
J. B. Martin
T. J. Polich
C. E. Tedford
R. M. Diggs (w/WFD $150.00)

ATTACHMENT

A. DESCRIPTION OF THE TECHNICAL SPECIFICATION AMENDMENT REQUEST

Technical Specification (TS) 3/4.3.3.8 delineates the operability requirements for the radioactive gaseous effluent monitoring instrumentation channels. TS 3/4.11.2.5 provides limits for the concentration of oxygen in the waste gas holdup system whenever the hydrogen concentration exceeds 4.0 v/o, and also provides surveillance requirements for determining the hydrogen or oxygen concentrations. The proposed change will assume that the hydrogen concentration is always greater than 4 v/o, and will delete requirements to analyze the waste gas holdup system for hydrogen. The requirement to sequentially analyze the Chemical and Volume Control System (CVCS) tanks and the Waste Gas Decay Tank (WGDT) for oxygen will also be deleted.

B. PURPOSE OF THE TECHNICAL SPECIFICATION

The radioactive gaseous effluent instrumentation required operable by TS 3/4.3.3.8 is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases of gaseous effluents. The instrumentation also includes provisions for monitoring (and controlling) the concentrations of potentially explosive gas mixtures in the gaseous radwaste system (GRS). TS 3/4.11.2.5 is provided to ensure that the concentration of potentially explosive gas mixtures contained in the waste gas holdup system is maintained below the flammability limits of hydrogen and oxygen.

C. NEED FOR THE TECHNICAL SPECIFICATION AMENDMENT

Since the hydrogen concentration will always be assumed greater than 4 v/o, there is no need to monitor the hydrogen concentrations in the waste gas holdup system. Therefore, the hydrogen monitors can be removed from the Technical Specifications. The sequential oxygen monitoring system has never functioned as it was intended to. By continuously monitoring the header to the Surge Tank, the intent to monitor each of the CVCS tanks is satisfied. Therefore, the requirement to sequentially analyze the CVCS tanks can be deleted.

D. BASIS FOR PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

1. The Commission has provided standards for determining whether a significant hazards consideration exists as stated in 10CFR50.92. 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 the amendment request follows:

Standard 1--Involve a significant increase in the probability or consequences of an accident previously evaluated.

The design basis accident with respect to the GRS is a rupture of a WGDT. It is assumed that the cause is either an explosion or an operator error. The probability of an explosion occurring does not increase since the source of the gases (Surge Tank) pumped to the WGDT is still being monitored with dual analyzers for an explosive mixture. It will be assumed that the Surge Tank contains greater than 4 v/o hydrogen and the applicable action statements will be implemented based upon the sensed oxygen concentration as measured by the oxygen analyzers. Furthermore, upon receiving a high oxygen concentration alarm (2 v/o) chemistry will be required to obtain a grab sample of the online WGDT for oxygen concentration. Since the WGDT's are pressurized, air inleakage is virtually impossible from any source other than the Waste Gas compressors. Section 11.3.1.1.4 of the FSAR maintains "only in the unlikely event of simultaneous failure of both diaphragms of the compressors does the potential for leakage exist." Therefore, deleting the requirement of sampling the WGDT does not increase the probability of the accident occurring.

The chances of an event initiated by operator error does not change since the proposed change does not effect operator actions as they are presently being performed. All sampling is done automatically and will continue to be automatic. The number of valve lineups will not change nor will the extent of the valve lineups change.

An additional event to consider is the rupture of the Holdup Tank (HUT). The HUT, which is vented to atmosphere, will no longer be monitored periodically by the sampling system. By considering the volumes of unstripped water necessary to bring the HUT atmosphere to an explosive mixture, it's clearly improbable that the explosive limit would ever be reached. Calculations show that it would require the addition of 300,000 gallons of unstripped RCS water. The calculation assumes that the hydrogen content in the water is 50cc/kg, (the maximum concentration maintained in the RCS), and that the HUT remains a closed system during the RCS addition.

In reality the HUT is vented to the Fuel Building HVAC system which maintains a slight negative pressure in the tank. Also, there's no way to add that amount of water with a hydrogen overpressure to the HUT. The main influent of hydrogen saturated water is letdown, which is controlled by RCS makeup requirements of dilution evolutions. In the case of dilutions, the maximum amounts will occur at end of core life with additions of 5,000 gallons being the largest. Other periods of excessive letdown occur when a plant heatup is conducted. In going from an average temperature of 200 degrees to 593 degrees, a volume change occurs in the RCS of about 15,000 gallons. This could conceivably all be directed around the Gas Stripper and to the HUT, but is insignificant in comparison with the amount necessary to reach an explosive mixture.

In all cases, the rupture of the HUT is bounded by a rupture of the Refueling Water Tank, which is the limiting accident in the accident analyses per Section 15.7.2 of the FSAR. The probability of RWT rupture is in no way affected by this proposed change.

The consequences of a WGDT rupture will not change since the proposed change does not affect the concentrations of radionuclides assumed present in the accident analysis. Therefore, the probability or consequences of an accident previously evaluated will not be increased.

Standard 2--Create the possibility of a new or different kind of accident from any accident previously evaluated.

The main purpose of the waste gas holdup system is to contain radioactive gases for a sufficient amount of time in order to allow for the gases to decay. Therefore, the only malfunction or accident would be an event that would release the radioactive gas to the environment. This has already been analyzed in Chapter 15 of the FSAR.

The Chapter 15 analysis assumes the initiating event of a WGDT rupture is an explosion or operator error. A dispersal to the environment of a freshly filled WGDT or Surge Tank is the only accident or malfunction possible and is already analyzed and bounded by the Chapter 15 analysis of a WGDT rupture. Therefore, the possibility of a new or different accident from any accident previously evaluated will not be created.

Standard 3--Involve a significant reduction in a margin of safety.

The proposed change increases the margin of safety as defined in the basis of the Technical Specifications since it will be assumed that the waste gas holdup system always has a hydrogen

concentration greater than 4 v/o when in service. The applicable action statement will be complied with whenever measured oxygen concentration exceeds 2 v/o or 4 v/o respectively. Therefore, the existing margin of safety ensured by the TS is not reduced by this proposed change.

2. The proposed change matches the guidance concerning the application of the standards for determining whether or not a significant hazards consideration exists (51FR7751) by the example:

(ii) A change that constitutes an additional limitation, restriction or control not presently included in the technical specifications: for example, a more stringent surveillance requirement.

and

(ix) Other: A change to remove the operability requirements for a system that does not fulfill its intended function, and to revise the technical specifications so that the original intent for that system may be satisfied.

E. SAFETY EVALUATION FOR THE AMENDMENT REQUEST

The proposed change does not involve an increase in the probability or consequences of an accident previously evaluated in the FSAR or a malfunction of equipment important to safety. The design basis accident with respect to the GRS is a rupture of a WGDT. It is assumed that the cause is either an explosion or an operator error. The probability of an explosion occurring does not increase since the source of the gases (Surge Tank) pumped to the WGDT is still being monitored with dual analyzers for an explosive mixture. It will be assumed that the Surge Tank contains greater than 4 v/o hydrogen and the applicable action statements will be implemented based upon the sensed oxygen concentration as measured by the oxygen analyzers. Furthermore, upon receiving a high oxygen concentration alarm (2 v/o) chemistry will be required to obtain a grab sample of the online WGDT for oxygen concentration. Since the WGDT's are pressurized, air inleakage is virtually impossible from any source other than the Waste Gas compressors. Section 11.3.1.1.4 of the FSAR maintains "only in the unlikely event of simultaneous failure of both diaphragms of the compressors does the potential for leakage exist." Therefore, deleting the requirement of sampling the WGDT does not increase the probability of the accident occurring.

The chances of an event initiated by operator error does not change since the proposed change does not effect operator actions as they are presently being performed. All sampling is done automatically and will continue to be automatic. The number of valve lineups will not change nor will the extent of the valve lineups change.

An additional event to consider is the rupture of the Holdup Tank (HUT). The HUT, which is vented to atmosphere, will no longer be monitored periodically by the sampling system. By considering the volumes of unstripped water necessary to bring the HUT atmosphere to an explosive mixture, it's clearly improbable that the explosive limit would ever be reached. Calculations show that it would require the addition of 300,000 gallons of unstripped RCS water. The calculation assumes that the hydrogen content in the water is 50cc/kg, (the maximum concentration maintained in the RCS), and that the HUT remains a closed system during the RCS addition.

In reality the HUT is vented to the Fuel Building HVAC system which maintains a slight negative pressure in the tank. Also, there's no way to add that amount of water with a hydrogen overpressure to the HUT. The main influent of hydrogen saturated water is letdown, which is controlled by RCS makeup requirements of dilution evolutions. In the case of dilutions, the maximum amounts will occur at end of core life with additions of 5,000 gallons being the largest. Other periods of excessive letdown occur when a plant heatup is conducted. In going from an average temperature of 200 degrees to 593 degrees, a volume change occurs in the RCS of about 15,000 gallons. This could conceivably all be directed around the Gas Stripper and to the HUT, but is insignificant in comparison with the amount necessary to reach an explosive mixture.

In all cases, the rupture of the HUT is bounded by a rupture of the Refueling Water Tank, which is the limiting accident in the accident analyses per Section 15.7.2 of the FSAR. The probability of RWT rupture is in no way affected by this proposed change.

The consequences of a WGDT rupture will not change since the proposed change does not affect nor change the concentrations of radionuclides assumed present in the accident analysis.

The Surge Tank will be diluted on a high-high oxygen concentration of 4 v/o in either the Surge Tank itself or in the Waste Gas Surge Header upstream of the Surge Tank. With the current system design, a high-high oxygen concentration in any of the GRS inputs, except the holdup tank, will automatically dilute only the Surge Tank. None of the inputs are diluted automatically. Furthermore, the proposed change does not change the inputs into the CVCS tanks nor does it change the rate of input additions to the tanks. Therefore, deleting the requirement to sequentially analyze the inputs will not increase the probability of damaging the CVCS tanks.

The consequences of a malfunction of equipment that is important to safety will not increase since the proposed change does not change the bounds of the Chapter 15 analysis of a gaseous release. Therefore, the probability or consequences of an accident previously evaluated or a malfunction of equipment important to safety will not be increased.

The proposed change will not create the possibility of a new or different kind of accident or malfunction from any previously evaluated. The main purpose of the waste gas holdup system is to contain radioactive gases for a sufficient amount of time in order to allow for the gases to decay. Therefore, the only malfunction or accident would be an event that would release the radioactive gas to the environment. This has already been analyzed in Chapter 15 of the FSAR.

The Chapter 15 analysis assumes the initiating event of a WGDT rupture is an explosion or operator error. A dispersal to the environment of a freshly filled WGDT or Surge Tank is the only accident or malfunction possible and is already analyzed and bounded by the Chapter 15 analysis of a WGDT rupture. Therefore, the possibility of new or different kind of accident or malfunction from any previously evaluated will not be created.

The proposed change will not reduce a margin of safety as previously defined in the technical specifications. The proposed change increases the margin of safety as defined in the basis of the Technical Specifications since it will be assumed that the waste gas holdup system always has a hydrogen concentration greater than 4 v/o when in service. The applicable action statement will be complied with whenever measured oxygen concentration exceeds 2 v/o or 4 v/o respectively. Therefore, the existing margin of safety ensured by the TS is not reduced by this proposed change.

F. ENVIRONMENTAL IMPACT CONSIDERATION DETERMINATION

The proposed change request does not involve an unreviewed environmental question because operation of PVNGS Units 1, 2 and 3, in accordance with this change would not:

1. Result in a significant increase in any adverse environmental impact previously evaluated in the Final Environmental Statement (FES) as modified by the staff's testimony to the Atomic Safety and Licensing Board, Supplements to the FES, Environmental Impact appraisals, or in any decisions of the Atomic Safety and Licensing Board; or

2. Result in a significant change in effluents or power levels; or

3. Result in matters not previously reviewed in the licensing basis for PVNGS which may have a significant environmental impact.

G. MARKED-UP TECHNICAL SPECIFICATION CHANGE PAGES FOR UNITS 1,2 AND 3:

Limiting Conditions for Operation and Surveillance Requirements:

3/4 3-63
3/4 3-64
3/4 3-69
3/4 3-70
3/4 3-71
3/4 3-72
3/4 11-14