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SUBJECT: Responds to request for addl info re proposed amend to TS D
 Section 5.3.1, "Fuel Assemblies." S

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WILLIAM F. CONWAY
EXECUTIVE VICE PRESIDENT
NUCLEAR

102-02876-WFC/RAB/GEC
March 28, 1994

U. S. Nuclear Regulatory Commission
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Reference: Letter 102-02706, dated October 26, 1993, from W. F. Conway, Executive Vice President, Nuclear, APS, to NRC, Proposed Amendment to Technical Specification Section 5.3.1

Dear sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Docket Nos. STN 50-528/529/530
Additional Information for Proposed Amendment
to Technical Specification Section 5.3.1
File: 94-005-419.05; 94-056-026

Arizona Public Service Company (APS) submitted, in the referenced letter, a proposed amendment to Technical Specification (TS) Section 5.3.1, FUEL ASSEMBLIES. This proposed amendment was requested to increase the maximum enrichment of reload fuel from "enrichment of 4.05 weight percent U-235" to "radially averaged enrichment of 4.30 weight percent U-235 at any axial location." This proposed amendment was submitted in anticipation of using fuel enriched to 4.30 weight percent U-235 for cycle 5 in Unit 3.

An analysis has been performed to ensure that radiological consequences of fuel handling accidents are within the acceptance criteria of NUREG-75/087, Standard Review Plan 15.7.4 (i.e. well within the 10 CFR Part 100 exposure guidelines). The assumptions and results of the analysis are provided in the enclosure. This information was requested in a telephone conversation with the NRC Staff on March 1, 1994.

Additionally, a review of Supplement 1 to Generic Letter 90-02, Alternative Requirements for Fuel Assemblies in the Design Features Section of Technical Specifications has been performed, and APS agrees with NRC's removal of the phrase "or by vacancies" from

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the approved PVNGS Units 1, 2, and 3 Technical Specifications (Section 5.3.1) as discussed in a telephone conversation with the NRC Staff on March 14, 1994.

This additional information related to the proposed amendment to TS Section 5.3.1 is being provided to the Arizona Radiation Regulatory Agency (ARRA) by copy of this letter.

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

Sincerely,

A handwritten signature in cursive script, appearing to read "W. Conway".

WFC/RAB/GEC/rv

Enclosure

cc: K. E. Perkins, Jr.
K. E. Johnston
A. V. Godwin (ARRA)
B. E. Holian

ENCLOSURE

**ASSUMPTIONS AND RESULTS OF AN ANALYSIS OF
RADIOLOGICAL CONSEQUENCES OF A FUEL HANDLING ACCIDENT
FOR FUEL ENRICHED TO 4.30 WEIGHT PERCENT U-235**

An analysis has been performed to ensure that radiological consequences of fuel handling accidents are within the acceptance criteria of NUREG-75/087, Standard Review Plan 15.7.4 (i.e. well within the 10 CFR Part 100 exposure guidelines).

ASSUMPTIONS OF THE ANALYSIS

The assumptions of the analysis of the radiological consequences of fuel handling accidents are consistent with those stated in Updated Final Safety Analysis Report (UFSAR) Section 15.7.4 (specifically the column in UFSAR Table 15.7.4-1 titled Regulatory Guide 1.25 Assumptions), except that a maximum radially averaged enrichment of 4.30 weight percent U-235 at any axial location was assumed in lieu of the enrichment employed in the existing UFSAR analysis. The analysis was performed utilizing NRC approved methodology. In addition, the current higher initial stack density and pellet diameter were incorporated into the calculation, and the power assigned to the assembly was 1.65 times the average power per assembly in the PVNGS cores. Further, a linear relationship was assumed between the I-131 activity released to the spent fuel pool and the resulting thyroid dose.

RESULTS OF THE ANALYSIS

The fission product activity released to the fuel pool (curies), based on an enrichment of 4.30 weight percent U-235, for those nuclides identified in UFSAR Table 15.7.4-1 is as follows:

I-129	2.08×10^{-3}
I-131	$4.88 \times 10^{+4}$
Xe-131m	$7.34 \times 10^{+2}$
Xe-133	$0.93 \times 10^{+5}$
Kr-85	$1.94 \times 10^{+3}$

The calculated thyroid dose at the two-hour exclusion area boundary, using the Iodine activity at 72 hours, was 96 rem as reported in UFSAR Tables 15.7.4-3 (fuel handling accident outside containment without emergency safety features [ESF] system actuation) and 15.7.4-5 (fuel handling accident inside containment without refueling purge isolation).

Using the activities stated above, the calculated thyroid dose at the two-hour exclusion area boundary resulting from a 4.30 weight percent U-235 fuel assembly handling accident 100 hours after shutdown, would be 71.5 rem which is within the acceptance criteria.

UFSAR REVISION

The PVNGS design incorporates redundant ESF trains of fuel building ventilation that are designed to operate during and after design basis events; thus a direct path for release (the "Without ESF Actuation" case in UFSAR Table 15.7.4-3) is not a design assumption. Additionally, PVNGS Technical Specification (TS) 3/4.9.4 precludes core alterations or movement of irradiated fuel within the containment unless each penetration (equipment door, airlock, or other penetrations from the containment atmosphere to the outside atmosphere) is closed or capable of being closed by an operable automatic containment purge valve.

Based upon these design features and controls, the information provided in the UFSAR regarding radiological consequences of a fuel handling accident both inside containment (without refueling purge isolation) and outside containment (without ESF actuation) is not appropriate. Even though the analysis discussed above produces results within the acceptance criteria, APS will be revising the discussion in UFSAR Section 15.7.4 to take credit for the existing PVNGS design features (ESF actuation and containment purge isolation) and controls (TS 3/4.9.4) and the tables containing radiological consequences for fuel handling accidents (both inside and outside containment) will be revised to reflect the analysis for 4.30 weight percent U-235 enriched fuel with appropriate design features and controls.

THE
FEDERAL
BUREAU OF
INVESTIGATION
U. S. DEPARTMENT OF JUSTICE

STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

I, W. F. Conway, represent that I am Executive Vice President - Nuclear, that the foregoing document has been signed by me on behalf of Arizona Public Service Company with full authority to do so, that I have read such document and know its contents, and that to the best of my knowledge and belief, the statements made therein are true and correct.

W. F. Conway W. F. Conway

Sworn To Before Me This 28th Day Of March, 1994.

Ramona Wright
Notary Public

My Commission Expires



OFFICIAL SEAL
RAMONA WRIGHT
Notary Public - State of Arizona
MARICOPA COUNTY
My Commission Expires Aug. 15, 1997

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