

October 30, 2001

MEMORANDUM TO: File

FROM: L. Raynard Wharton, Project Manager **/RA/**  
Project Directorate IV, Section 2  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

SUBJECT: ZIRLO FUEL CLADDING E-MAIL FOR PALO VERDE UNITS 1, 2, AND 3  
(TAC NOS. MB3080, MB3081, AND MB3082)

In the attached e-mail, Arizona Public Service Company (APS), the licensee of Palo Verde Nuclear Generating Station, Units 1, 2, and 3, provided discussion points for telephone conference conducted on October 2, 2001. The telephone conference was requested to discuss APS's proposal to submit an amendment application for a recently approved Combustion Engineering Owner's Group (CEOG) Topical Report, CENPD-404-P, REVISION 0, "IMPLEMENTATION OF ZIRLO MATERIAL CLADDING IN CE NUCLEAR POWER FUEL ASSEMBLY DESIGNS." APS plans to submit the proposed amendment near the end of November.

Docket No. STN 50-528, STN 50-529, and STN 50-530

Attachment: E-mail dated October 1, 2001

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RidsNrrPMRWharton

RidsNrrLAMMcAllister

SDembek

PDIV-2 r/f

**ADAMS ACCESSION NUMBER: ML012850382**

NRR-106

OFFICE	PDIV-2/PM	PDIV-2/LA	PDIV-2/SC
NAME	RWharton:lf	MMcAllister	SDembek
DATE	10/29/01	10/18/01	10/30/01

**OFFICIAL RECORD COPY**

E-MAIL DATED October 1, 2001

Attachment

**From:** "Weber, Thomas N(Z00499)" <TWEBER01@apsc.com>  
**To:** "Ray Wharton (NRC PM)" <lrw@nrc.gov>  
**Date:** 10/1/01 5:34PM  
**Subject:** NRC Phone Call on Tuesday 10-02-01

The phone call tomorrow (Tuesday, October 2, 2001) regarding the upcoming TS change for Zirlo Fuel cladding is scheduled for 2:00 pm EDT (11:00 am Az time). I have set up a bridge line for this call. The number to call is (602)-371-7944, pin number 3366 (put in pin number after the beep). For PVNGS onsite, call 83-7944, pin number 3366.

If you have any questions, please give me a call at (623)-393-5764.

The purpose of the phone call is to discuss the proposed APS responses to the Conditions in the NRC Safety evaluation for the Zirlo Topical Report.

The responses are tentatively written as:

#### Condition 1

The corrosion limit as predicted by the best-estimate model will remain below 100 microns for all locations of the fuel.

APS Response: APS will calculate the corrosion thickness using the best estimate models and methods described in CENPD-404-P-A. Contained in this document is a letter from P. W. Richardson (WEC) to J. S. Cushing (NRC), "Response to Requests for Additional Information on Topical Report CENPD-404-P, Rev. 0", LD-2001-0045, Rev. 0, August 10, 2001. This letter specifically addresses the best estimate models for predicting corrosion limits. The maximum allowable corrosion will be 100 microns and this limit will be added to the PVNGS Updated Final Safety Analysis (UFSAR).

#### Condition 2

All the conditions listed in the SEs for all the CENPD methodologies used for ZIRLO fuel analysis will continue to be met, except that the use of ZIRLO cladding in addition to Zircaloy-4 cladding is now approved.

APS Response: APS will continue to abide by the conditions listed in the safety evaluations for all CENPD methodologies used for the analysis of ZIRLO fuel. This will be accomplished through APS' Quality Assurance (QA) process that is employed for use of methodologies.

#### Condition 3

All CENP methodologies will be used only within the range for which ZIRLO data was acceptable and for which the verifications discussed in CENPD-404-P and responses to requests for additional information were performed.

APS Response: ZIRLO data ranges for the methodologies in which they are used will be verified through APS' Quality Assurance (QA) process that is employed for use of methodologies.

Attachment

Condition 4

Until data is available demonstrating the performance of ZIRLO cladding in CENP designed plants, the fuel duty will be limited for each CENP designed plant with some provision for adequate margin to account for variations in core design (e.g., cycle length, plant operating conditions, etc). Details of this condition will be addressed on a plant specific basis during the approval to use ZIRLO in a specific plant.

APS Response: APS will limit the fuel duty for PVNGS with a provision for adequate margin to account for variations in core design (e.g., cycle length, plant operating conditions, etc). This limit will be applicable until data is available demonstrating the performance of ZIRLO cladding at PVNGS. APS will restrict the modified Fuel Duty Index (FDIm) of ZIRLO clad fuel to 110% of the value previously experienced at PVNGS plants in the aggregate. For a limited number of assemblies (4 or 8), APS will restrict the fuel duty of ZIRLO clad fuel to 120% of the value previously experienced at PVNGS plants in the aggregate. The maximum value of the FDIm at PVNGS plant (not including any current reactor designs) is approximately [577]. This value will be confirmed in a qualified analysis and used to establish the baseline FDIm and the exact FDIm limits prior to the first use of ZIRLO fuel.

NOTE: Additional justification and discussion of the response to #4 will be provided during the phone call.

Condition 5

The burnup limit for this approval is 60 MWD/MTU.

APS Response: APS will maintain the maximum radial integrated rod burnup below 60 MWD/MTU. This maximum burnup for ZIRLO clad fuel assemblies will be added to the PVNGS UFSAR.