

September 11, 1997

Mr. James M. Levine
Executive Vice President, Nuclear
Arizona Public Service Company
Post Office Box 53999
Phoenix, Arizona 85072-3999

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING PROPOSED TECHNICAL SPECIFICATION AMENDMENT FOR STEAM GENERATOR TUBE SLEEVING FOR THE PALO VERDE NUCLEAR GENERATING STATION (TAC NOS. M98920, M98921 AND M98922)

Dear Mr. Levine:

By letter dated May 23, 1997, Arizona Public Service Company submitted a proposed Technical Specification (TS) amendment for the Palo Verde Nuclear Generating Station (PVNGS) that would allow the installation of tube sleeves designed by ABB-Combustion Engineering as an alternative to plugging defective steam generator tubes at PVNGS. The design, qualification, and installation of the sleeves are described in the ABB-Combustion Engineering topical report CEN-630-P, Revision 1 (November 1996), "Repair of 3/4 inch O.D. Steam Generator Tubes Using Leak Tight Sleeves." The staff has reviewed the submittal and has determined that additional information, as discussed in the enclosure, is needed to complete its review.

To assist the staff in completing its review of the application, please respond in writing to this request for additional information within 30 days from the date of this letter.

If you have any questions, please contact me at (301) 415-1362.

Sincerely,

Original Signed By

Kristine M. Thomas, Project Manager
Project Directorate IV-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-528, STN 50-529
and STN 50-530

Enclosure: Request for Additional
Information

cc w/encl: See next page

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Mr. James M. Levine

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September 11, 1997

cc w/encl:

Mr. Steve Olea
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, Arizona 85007

Douglas Kent Porter
Senior Counsel
Southern California Edison Company
Law Department, Generation Resources
P.O. Box 800
Rosemead, California 91770

Senior Resident Inspector
USNRC
P. O. Box 40
Buckeye, Arizona 85326

Regional Administrator, Region IV
U. S. Nuclear Regulatory Commission
Harris Tower & Pavillion
611 Ryan Plaza Drive, Suite 400
Arlington, Texas 76011-8064

Chairman, Board of Supervisors
ATTN: Chairman
301 W. Jefferson, 10th Floor
Phoenix, Arizona 85003

Mr. Aubrey V. Godwin, Director
Arizona Radiation Regulatory Agency
4814 South 40 Street
Phoenix, Arizona 85040

Ms. Angela K. Krainik, Manager
Nuclear Licensing
Arizona Public Service Company
P.O. Box 52034
Phoenix, Arizona 85072-2034

Mr. John C. Horne, Vice President
Power Supply
Palo Verde Services
2025 N. Third Street, Suite 220
Phoenix, Arizona 85004

Mr. Robert Burt
Los Angeles Department of Water & Power
Southern California Public Power Authority
111 North Hope Street, Room 1255-B
Los Angeles, California 90051

Mr. David Summers
Public Service Company of New Mexico
414 Silver SW, #0604
Albuquerque, New Mexico 87102

Mr. Robert D. Bledsoe
Southern California Edison Company
14300 Mesa Road, Drop D41-SONGS
San Clemente, California 92672

Mr. Robert Henry
Salt River Project
6504 East Thomas Road
Scottsdale, Arizona 85251

Terry Bassham, Esq.
General Counsel
El Paso Electric Company
123 W. Mills
El Paso, Texas 79901

Enclosure

REQUEST FOR ADDITIONAL INFORMATION

REVIEW OF LICENSE AMENDMENT REGARDING

SLEEVING OF STEAM GENERATOR TUBES

PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2 AND 3

By letter dated May 23, 1997, Arizona Public Service Company (APS) submitted for staff review a request for a technical specification (TS) amendment to allow the installation of tube sleeves as an alternative to plugging defective steam generator tubes at Palo Verde Units 1, 2, and 3. The submittal includes a proposed revision to the TS to allow steam generator tube repair using leak tight sleeves designed by ABB-Combustion Engineering (CE). The design, qualification, and installation of the sleeves are described in the ABB-CE topical report, 'Repair of 3/4" O.D. Steam Generator Tubes Using Leak Tight Sleeves,' CEN-630-P, Revision 1, November 1996. In order to complete its review, the staff requests the following additional information:

1. The proposed TS changes describe eddy current inspection criteria for steam generator (SG) tubes without particular reference to sleeve inspections. Without explicit inspection criteria in the TS, the requirements for the initial sample scope and subsequent expansion criteria for sleeve inspections would be based on existing TS requirements (e.g., 3% initial sample scope). The staff believes that the proposed TS do not provide adequate inservice inspection (ISI) of sleeved steam generator tubes, and that the inspection and expansion criteria in the EPRI Steam Generator Tube Examination Guidelines should be satisfied, as a minimum, for all sleeved tubes. Please provide appropriate wording in the TS reflecting this criteria. For reference, a previously adopted table incorporated in the TS for another licensee is attached.

Further, several TS sections (4.4.4.2; 4.4.4.3.b; 4.4.4.3.c; and 4.4.4.4.b) will be affected and need to be modified when a separate table is generated for sleeve inspections.

2. Describe the extent to which APS subscribes to the EPRI PWR Steam Generator Tube Examination Guidelines. For example, does APS use the Appendix G, "Qualified Personnel" and Appendix H "Qualified Techniques" in the EPRI Guidelines?
3. Describe the approach APS plans for adopting new and improved eddy current techniques for sleeve inspections.
4. Recent experience at the Kewaunee nuclear plant showed that visual test (VT) examinations of welded freespan joints may detect significant process-induced defects that were not detectable or resolvable by ultrasonic tests (UT) or eddy current (EC) examinations. The ABB-CE

report discussed two VTs associated with the sleeving process, but does not specifically state that a VT is required. Clarify if APS will perform a VT in accordance with the topical report and how often a VT will be performed. If a VT will not be performed, provide the details of the nondestructive examination qualification efforts that justify the use of UT and EC inspections, without a VT, as a sufficient means to demonstrate acceptable sleeve weld quality.

5. APS stated in TS Bases Section 3/4.4.4 that it will perform post weld heat treatment (PWHT) to the sleeve weld joints. The staff believes that commitments made in the Bases section are subjected to change under 10 CFR 50.59 and, therefore, are inappropriate for inclusion in staff safety evaluations. The staff requests APS incorporate the commitment to perform PWHT in the surveillance requirements section of TS, preferably in TS Section 4.4.4.4. As an alternative, APS may submit for staff review an evaluation that demonstrates the acceptability of weld joints integrity without the PWHT.
6. The current TS Limiting Condition for Operation (LCO) 3.4.5.2.c specifies an allowable leakage of 1 gpm for the total primary-to-secondary leakage through all steam generators and 720 gallons per day through any one steam generator. The NRC staff position regarding operational leakage limits is that allowable operational leakage limits should be reduced to 150 gallons per day through any one steam generator when sleeving of steam generator tubes is performed. Please revise the TS accordingly.
- 7(a). APS has proposed a plugging limit for ABB-CE sleeves of 35% of the nominal sleeve wall thickness. This is documented in the proposed TS. However, the topical report, CEN-630-P, calculated a "% allowable degradation" that is different from 35%. Please clarify the basis for the 35% TS limit, and its relation to the calculated value in the topical report.
- 7(b). The associated proposed TS Section 4.4.4.4.a.7.b does not clearly document that the plugging limit is 35% of the sleeve wall thickness. Please modify the proposed TS to address this. The following wording for TS Section 4.4.4.4a.7.b would clarify the matter: "b. ABB-CE Leak Tight Sleeve Wall 35%".
8. As part of the TS amendment request to use ABB-CE sleeves, APS submitted two proposed revisions of TS changes. The first version proposed changes to the current, approved TS. The second version proposed changes to the Improved TS. The staff will only review the proposed changes associated with the current TS. The Improved TS are being reviewed under a separate TS amendment request. The proposed sleeve inspection changes to the Improved TS should be submitted under that TS amendment request. The staff suggests that the TS issues addressed in this Request for Additional Information also be addressed in the Improved TS.

Attachment: Table

TABLE 4.4-23

STEAM GENERATOR TUBE SLEEVE INSPECTION

1ST SAMPLE INSPECTION			2ND SAMPLE INSPECTION		3RD SAMPLE INSPECTION	
Sample Size	Result	Action Required	Result	Action Required	Result	Action Required
A minimum of 6 Tubes 20% of each type of installed sleeve per S.G. (1)	C-1	None	N/A	N/A	N/A	N/A
	C-2	Plug tubes containing defective tubes sleeves and inspect all remaining installed sleeves additional 25 tubes in this S.G.	C-1	None	N/A	N/A
			C-2	Plug tubes containing defective tubes sleeves and inspect additional 45 tubes in this SG	C-1	None
					C-2	Plug or sleeve defective tubes
					C-3	Perform action for C-3 result of first sample
	C-3	Inspect all installed sleeves tubes in this S.G., plug tubes containing defective tubes sleeves and inspect 100% of the installed sleeves 25 tubes in each the other S.G.	C-3	Perform action for C-3 result of first 6 sample	N/A	N/A
	C-3	Special Report to NRC per Specification 6.9.2	All other S.G.s are C-1	None	N/A	N/A
			Some Other S.G.s is C-2 but no additional S.G. are C-3	Perform action for C-2 result of second sample Plug tubes containing defective sleeves	N/A	N/A
			Additional Other S.G. is C-3	Inspect all sleeves tubes in each S.G. and plug tubes containing defective tubes sleeves. Special Report to NRC per Spec. 6.9.2.	N/A	N/A

~~6 - 3 N - 1~~ Where N is the number of steam generators in the unit, and n is the number of steam generators inspected during an inspection (1) Each sleeve type is considered a separate population for determination of sample expansion.

