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A. Edward Scherer
Manager of
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April 14, 2003

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Subject: **Docket Nos. 50-361, and 50-362**
Steam Generator Tubesheet Inspections
San Onofre Nuclear Generating Station Units 2 and 3

Reference: Letter from the Nuclear Energy Institute to R. J. Barrett, NRC dated February 4, 2003, Subject: "Steam Generator Tubesheet Inspection Information"

Dear Sir or Madam:

The Referenced letter responded to a Nuclear Regulatory Commission (NRC) request for Nuclear Energy Institute (NEI) to coordinate utility responses to steam generator questions at several pressurized water reactors. As a result, NEI developed a template for utilities to use in responding to the NRC request.

Enclosures 1 and 2 to this letter provide the completed templates for San Onofre Unit 2 and Unit 3 respectively.

Please contact Mr. J. L. Rainsberry at (949) 368-7420 if you have any questions or require additional information regarding these responses.

Sincerely,

Enclosures

cc: E. W. Merschoff, Regional Administrator, NRC Region IV
B. M. Pham, NRC Project Manager, San Onofre Units 2, and 3
C. C. Osterholtz, NRC Senior Resident Inspector, San Onofre Units 2 & 3

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ENCLOSURE 1

San Onofre Unit 2

Steam Generator Tubesheet Inspection Information

TUBESHEET INSPECTION PRACTICES San Onofre Unit 2

Item	Plant Information
Plant Name:	San Onofre Unit 2
Thot assumed	593-620°F (Note 1)
Thot example	596°F (Actual, 3/24/2003)
Normal Steady State Full Power DP, assumed	1465 psi
Normal Steady State Full Power DP, example	1464 psi (Actual, 3/24/2003)
Model of Steam Generator:	Combustion Engineering 3410 MWt
Tube Material:	Nickel Alloy 600 HTMA (Ni-Cr-Fe-SB-163)
Tube Diameter:	.750 inches
Tube Wall Thickness:	0 048" nom
Expansion Process and Extent	CE "Explansion" Explosive, Full Depth
Tubesheet Thickness	23"
Susceptible to degradation below expansion transition region:	Yes
If no, provide basis for non-susceptibility determination	n/a

Historical Inspection Practices and Results	
Most recent outage:	
Date of Outage	June 2002
Cycle #	Beginning of Cycle 12
Inspection technique used	Bobbin coil / Rotating Coil Technology (RCT)
Extent of inspections (be specific on landmarks used to determine inspection extent)	All tubes; Hot leg, Bobbin coil full depth / RCT partial depth, 5 inches below the Top of tubesheet
Results (degradation mechanisms identified and orientation)	Primary Water Stress Corrosion Cracking (PWSCC); Hot leg, 11 Circumferential; 35 Axial (Note 3)
Bases for inspection technique and inspection extent	Bobbin = Tech Spec RCT = analytical
Technical Document reference (Generic or Plant Specific?)	WCAP 15894 (Note 2a-2c); Plant Specific
If generic, provide statement that plant conditions and design are bounded by Technical Document inputs and assumptions	n/a

Previous outages:	
Inspection techniques used	Bobbin, RCT Cycle 7 and Later
Extent of inspections (be specific on landmarks used to determine inspection extent)	Note 4a & 4b
Results (degradation mechanisms and orientation)	PWSCC; Hot leg; 28 Circumferential; 95 Axial (Note 5)
Bases for inspection technique and inspection extent	Bobbin = Tech Spec; RCT = analytical (Unit 2 C11 and later)

Planned Inspection for Next Outage	
Anticipated date of outage	1st Quarter 2004
Techniques to be used	Bobbin coil / RCT
Extent of inspections (be specific on landmarks used to determine inspection extent)	All tubes; Hot leg; Bobbin coil full depth / RCT partial depth, 7 inches below the Bottom of the Expansion Transition
Bases for inspection technique and inspection extent	Bobbin = Tech Spec RCT = analytical

Notes:

1 By design, the SONGS NSSS controlling temperature parameter is cold leg temperature.

2 WCAP-15894 Refers to:

2a WCAP 15894-P Revision 0; "NDE Inspection Strategy For the tubesheet Region in SONGS Units 2 and 3;" Dated May 2002; Westinghouse Proprietary Class 2

2b WCAP 15894-NP Revision 0; "NDE Inspection Strategy For the tubesheet Region in SONGS Units 2 and 3;" Dated May 2002; Non Proprietary Version

2c "Westinghouse Report WCAP 15984-P ERRATA;" Transmitted as -- Westinghouse Letter LTR-SGDA-02-174

2d WCAP 15894-P Supplement 1,Revision 0; "NDE Supplement to Inspection Strategy For the tubesheet Region in SONGS Units 2 and 3;" Dated November 2002; Westinghouse Proprietary Class 2

2e WCAP 15894-NP Supplement 1,Revision 0; "NDE Supplement to Inspection Strategy For the tubesheet Region in SONGS Units 2 and 3;" Dated November 2002; Non Proprietary

3 As reported in 15 day letter in Tables and Appendices. The table summarizes the number of tubes repaired and active degradation mechanisms found. Each tube is only counted once in this listing, although it may also have an eddy current indication of a type below the point in the listing where it appears. The appendices provide the complete results of the steam generator tubing inspection. For Unit 2, Table 3 lists 10 tubes with circumferential indications within the tubesheet. By examination the appendices indicate an additional tube that contains a circumferential indication. This additional tube contained another pluggable indication.

Notes (con't.)

4a Prior to 1993 - No rotating coil examinations; Cycle 7 and later inspections were Rotating Coil Technology (RCT) tested down to TTS-2" then to TTS-3". For the Cycle 11 and Unit 2 Cycle 12 outages (2000-2002) RCT tested down to TTS-5".

4b The landmarks to determine the inspection extent are: 1) Prior to Unit 3 cycle 12 (Jan. 2003) Nominal top-of-tubesheet. 2) Unit 3 Cycle 12 and upcoming outages - Bottom of expansion transition.

5 Unit 2 has experienced degradation within the tubesheet since 1993. These indications have been reported to NRC pursuant to the technical specification requirement via the "15 Day" letter following each inspection. This refers to previous inspections through Cycle 11.

6 Unit 3 has experienced degradation within the tubesheet since 1999. These indications have been reported to NRC pursuant to the technical specification requirement via the "15 Day" letter following each inspection. This refers to previous inspections through Cycle 11.

ENCLOSURE 2

San Onofre Unit 3

Steam Generator Tubesheet Inspection Information

TUBESHEET INSPECTION PRACTICES San Onofre Unit 3

Item	Plant Information
Plant Name:	San Onofre Unit 3
Thot assumed	593-620°F (Note 1)
Thot example	593°F (Actual, 3/24/2003)
Normal Steady State Full Power DP, assumed	1465 psi
Normal Steady State Full Power DP, example	1447 psi (Actual, 3/24/2003)
Model of Steam Generator	Combustion Engineering 3410 MWt
Tube Material.	Nickel Alloy 600 HTMA (Ni-Cr-Fe-SB-163)
Tube Diameter	.750 inches
Tube Wall Thickness·	0.048" nom
Expansion Process and Extent	CE "Explansion" Explosive, Full Depth
Tubesheet Thickness:	23"
Susceptible to degradation below expansion transition region:	Yes
If no, provide basis for non-susceptibility determination	n/a

Historical Inspection Practices and Results	
Most recent outage:	
Date of Outage	January 2003
Cycle #	Beginning of Cycle 12
Inspection technique used	Bobbin coil / Rotating Coil Technology (RCT)
Extent of inspections (be specific on landmarks used to determine inspection extent)	All tubes; Hot leg; Bobbin coil full depth / RCT partial depth; 7 inches below the Bottom of the Expansion Transition
Results (degradation mechanisms identified and orientation)	Primary Water Stress Corrosion Cracking (PWSCC); Hot leg, 3 Circumferential; 9 Axial (Note 3)
Bases for inspection technique and inspection extent	Bobbin = Tech Spec RCT = analytical
Technical Document reference (Generic or Plant Specific?)	WCAP 15894 (Note 2a-2e); Plant Specific
If generic, provide statement that plant conditions and design are bounded by Technical Document inputs and assumptions	n/a

Previous outages:	
Inspection techniques used	Bobbin, RCT Cycle 7 and Later
Extent of inspections (be specific on landmarks used to determine inspection extent)	Note 4a & 4b
Results (degradation mechanisms and orientation)	PWSCC; Hot leg; 0 Circumferential, 14 Axial. (Note 6)
Bases for inspection technique and inspection extent	Bobbin = Tech Spec; RCT = analytical (Unit 3 C11 and later)

Planned Inspection for Next Outage	
Anticipated date of outage	4th Quarter 2004
Techniques to be used	Bobbin coil / RCT
Extent of inspections (be specific on landmarks used to determine inspection extent)	All tubes; Hot leg, Bobbin coil full depth / RCT partial depth; 7 inches below the Bottom of the Expansion Transition
Bases for inspection technique and inspection extent	Bobbin = Tech Spec RCT = analytical

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