SONGS Unit 2
Steam Generator Inspections
2C12

Update with the NRC

June 3, 2000

SONGS Unit 2 Background

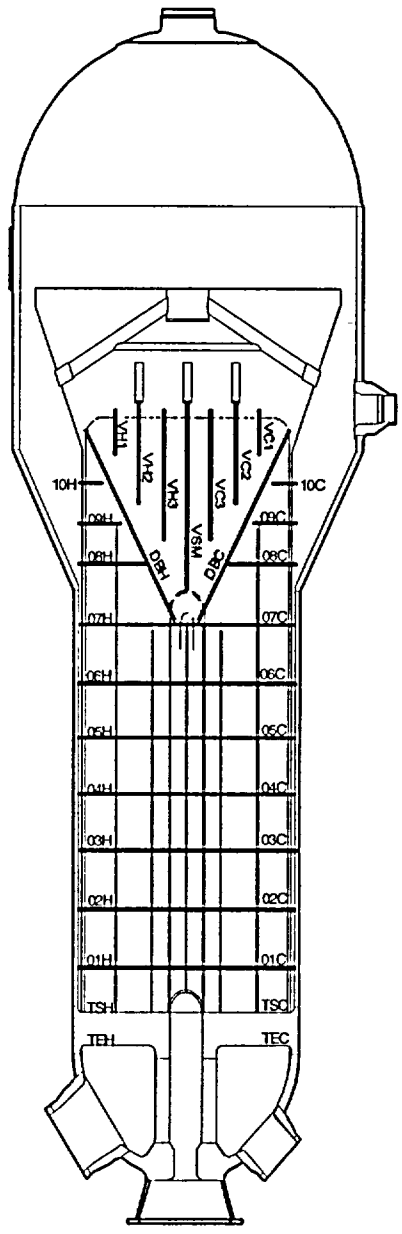
Two (2) steam generators

- Supplied by Combustion Engineering
- Designated SG 88 & 89
- SG88 - 8626 tubes in service (180 sleeved)
- SG89 - 8585 tubes in service (103 sleeved)

Recent Exam Outages

- Current Refueling Outage (2C12) 14.7 EFPY
- Prior Refueling Outage (2C11) 13.3 EFPY
- Prior Refueling Outage (2C10) 11.7 EFPY
- Prior Mid-cycle Exam (2M9) 10.8 EFPY
  - Prompted by PWSCC at dented intersections
- Prior Refueling Outage (2C9) 10.1 EFPY
  - Performed chemical cleaning of secondary side

SONGS Steam Generator



Completion Status
as of 6/3/2002

- Bobbin ECT Inspection - Complete
- +Point ECT Inspection - Complete in SG89, testing continues in SG88, 98% Complete
- Sludge Lancing/Visual Insp - Complete SG89, setting up SG88
- In-situ Testing - In progress SG89, 2 locations
- Sleeving - Following In-situ
- Plugging - Following Sleeving

Discussion Points (DP)

DP-1) Discuss whether any primary to secondary leakage existed in this unit prior to shutdown

- No primary to secondary leakage was detected prior to shutdown of this unit

DP-2) Discuss the results of secondary side hydrostatic tests

- No hydrostatic tests planned since no primary to secondary leakage during operation

DP-3) Description of Areas Examined

Bobbin Exam

- Full length exam of in-service tubes (100%)

Rotating Exams (+Point)

- Hot leg top-of-tubesheet locations (100%)
- Cold leg top-of-tubesheet locations (20%)
- Rows 1 thru 3 U-bend locations (100%)
- Installed sleeves (100%)
- Special Interest Locations ~10,050 locations
  - Non-quantifiable bobbin indications (I-codes) ~400 locations
  - Dents > or = 2volts (100%) ~8600 locations
  - Dings > or = 5 volts at hot leg locations ~200 locations
  - Tube wear at supports (100%) ~850 locations

Secondary Side Inspections

- Visual inspection for foreign objects, prior to and upon completion of sludge lancing.
- Two loose parts identified and retrieved from SG89

DP-4) Inspection Results and Repair Candidates as of 6/2/02

	SG 88	SG 89
TSH Circ, Axial, Volumetric	~81	~49
TSC Circ, Axial, Volumetric	~0	~0
Freespan Axial	~6	~7
Tube Support Axial	~23	~13
Tube Support Wear(>44%TW)	~0	~0
Tube Support Wear(Preventative)	~14	~23
Preventative	~?	~?
Total Repairs	~124	~92

DP-5) Tube Repair Criteria and Techniques

- Repair
  - All indications exceeding Technical Specification repair criteria
  - All crack-like indications
- Sleeves will be installed in tubes with crack-like indications top-of-tubesheet within the sleeve extent
- Circumferentially oriented indications will be stabilized or sleeved

DP-6) Repair History

Cause	2C10		2C11		2C12	
	SG 88/89		SG 88/89		SG 88/89	
TSH Circs	58	34	66	26	~47	~30
TSH Axial	36	23	36	38	~34	~17
TSC Axial	1	0	0	0	~0	~0
Freespan Axial	8	7	4	9	~6	~7
Support Axial	15	13	15	8	~23	~13
Support Wear	18	12	11	22	~14	~23
Preventative	1	8	0	4	~?	~?
U-bend	0	0	0	0	~0	~0
Volumetric	0	5	0	2	~0	~2
Total Repairs	137	102	132	109	~124	~92

DP-7) New Inspection Findings

- Discuss, in general, the new inspection findings
  - During the 2C12 inspection, no damage mechanisms that were new to SONGS-2 were detected
  - All mechanisms were previously detected and included in the degradation assessment and the operational assessment.

DP-8) In-situ Pressure Testing

- Utilizing latest EPRI and CEOG guidelines for candidate selection and testing
- All tubes meeting criteria are tested
- Have in-situ pressure tested 74 tubes at SONGS during seven prior inspections
- One tube in SG89 selected based on EPRI screening criteria
- Tubes in SG88 still under review

TUBE AND EDDY CURRENT INFORMATION											IN-SITU TEST RESULTS			
REGION	TUBE INFORMATION			PLUS POINT DATA							GPM @ NOPD	GPM @ MSLB	GPM @ NOPD POST MSLB	PRESURE 3xNOPD
	ROW	COL	LOCATION	LENGTH	VOLTS	Max. Depth %	PDA or Avg Depth %	ORIENTATION						

SONGS-2 IN SITU PRESSURE TEST LIST
S/G 89 Jun-2002

TUBE AND EDDY CURRENT INFORMATION											IN-SITU TEST RESULTS			
REGION	TUBE INFORMATION			PLUS POINT DATA							GPM @ NOPD	GPM @ MSLB	GPM @ NOPD POST MSLB	PRESURE 3xNOPD
	ROW	COL	LOCATION	LENGTH	VOLTS	Max. Depth %	PDA or Avg Depth %	ORIENTATION						
EGGCRATE	13	119	06H-0 18	0 18	0.24	71%	N/A	OD Axial						
LOW ROW U-BEND	1	165	DBH+9 91	N/A	N/A	N/A	N/A	DATA QUALITY						

DP-9) Tube Pull Plans

Describe tube pull plans and preliminary results

- No tube pulls are planned based on the inspection results

DP-10) Assessment of Tube Integrity From Previous Cycle

- Fourth application of multi-cycle, fully-probabilistic(Monte Carlo) methods to Operational Assessment for SONGS Unit 2 in accordance with EPRI Tube Integrity Assessment Guidelines
- Results for 2C12 in good agreement with OA projections
- Expect to pass Condition Monitoring performance criteria

DP-11) Assessment of Tube Integrity for Next Cycle

- Plan to continue use of multi-cycle, fully-probabilistic(Monte Carlo) methods for Operational Assessment for SONGS Unit 2 in accordance with EPRI Tube Integrity Assessment Guidelines

DP-12) 2C12 Milestone Schedule

Open breakers	5/20
Primary manways off	5/23
Begin ECT	5/24
End ECT	6/5
Insitu	6/5
Begin repairs	6/5
End repairs	6/11
Primary manways on	6/17
Close breakers	6/22

DP-13) IP2 Lessons Learned

- Actions taken in response to identifying a new degradation mechanism
  - No new mechanism identified this outage
- Actions taken to ensure data noise levels are acceptable
  - Continue to use HF probe in U-bend region (2nd time)
  - Reviewed EPRI data set vs. SONGS tubing
- Data quality issues and need for criteria to address data quality
  - EPRI Rev 6 addressing
  - SONGS participating