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U.S. Nuclear Regulatory Commission
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Docket No. 50-323, OL-DPR-82
Diablo Canyon Unit 2
Special Report 00-01 - 90 Day Report, Results of Steam Generator Alternate Repair
Criteria for Diablo Canyon Power Plant Unit 2 Ninth Refueling Outage

Dear Commissioners and Staff:

During the Unit 2 ninth refueling (2R9) outage, completed on October 23, 1999, PG&E implemented two steam generator tube alternate repair criteria (ARC): (1) WStar (W*) ARC; and (2) voltage-based ARC, in accordance with Generic Letter (GL) 95-05.

In accordance with Technical Specifications 4.4.5.5e, 4.4.5.5f, and 6.9.2, Enclosure 1 provides the 90 day report for W* ARC, including inspection results of W* tubes and the aggregate calculated steam line break leak rate from application of both ARCs in 2R9. In accordance with GL 95-05, Enclosure 2 provides the 90 day report for voltage-based ARC, and includes voltage distributions of indications and results of the tube integrity evaluation (calculated steam line break leak rate and conditional burst probability).

Sincerely,

Lawrence F. Womack

cc: Steven D. Bloom
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Enclosures

DDM/469

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SPECIAL REPORT 00-01

**90 DAY REPORT
W* ALTERNATE REPAIR CRITERIA
DIABLO CANYON POWER PLANT UNIT 2 NINTH REFUELING OUTAGE**

NRC Reporting Requirements

Diablo Canyon Power Plant (DCPP) Technical Specification (TS) 4.4.5.5.e requires that the results of the inspection of W* tubes be reported to the Commission pursuant to TS 6.9.2 (i.e., as a Special Report) within 90 days following return to service of the steam generators (SGs). The report shall include:

1. Identification of W* tubes.
2. W* inspection distance measured with respect to the bottom of the W* transition (BWT) or the top of tubesheet, whichever is lower.
3. Elevation and length of axial indications within the flexible W* distance and the angle of inclination of clearly skewed axial cracks (if applicable).
4. The total steam line break leakage for the limiting steam generator per WCAP-14797.

DCPP TS 4.4.5.5.f requires that the aggregate calculated steam line break leakage from application of all alternate repair criteria (ARC) be reported to the Commission pursuant to TS 6.9.2 (i.e., Special Report) within 90 days following return to service of the SGs.

W* Inspections and Results

This report implements the DCPP TS reporting criteria. W* ARC was implemented for the first time in DCPP Unit 2 during the ninth refueling outage (2R9). Following inspections and maintenance, the SGs were returned to service on October 23, 1999, upon entry into Mode 4.

100 percent of the SG tubes were inspected by bobbin from tube end to tube end. 100 percent of the hot leg top of tube sheet (TTS) region was inspected by Plus Point. Cold leg TTS inspections by Plus Point were not required.

Table 1 provides a comprehensive list of axial primary water stress corrosion cracking (PWSCC) indications detected in the WEXTEx region during 2R9 Plus Point inspections. The following TS-required reporting information is extracted from the table:

1. **Identification of W* tubes.** See "W* Tube" column in Table 1. Fifty seven tubes are categorized as W* tubes: 10 in SG 21, 6 in SG 22, 20 in SG 23, and 21 in SG 24. An additional 5 tubes with axial PWSCC were plugged because they did not meet W* ARC (upper crack tip was located above BWT, including uncertainty). One circumferential PWSCC indication (not listed) was also detected and plugged because circumferential indications in the W* region are excluded from W* ARC.
2. **W* inspection distance measured with respect to BWT or TTS, whichever is lower.** For the 100 percent Plus Point hot leg TTS exam, the inspection extent relative to the TTS was specified as +2/-8 in. Assuming no degradation in the W* length, 8 in. below the TTS constitutes the W* inspection distance. This distance bounds W* lengths for Zone A and Zone B (5.2 in. and 7.0 in., respectively, relative to BWT), and includes margin for a nominal distance from BWT to TTS plus non-destructive examination (NDE) uncertainty in measuring W* length. If degradation is detected in the W* region, the inspection extent must bound the calculated flexible W* length. The "W* Insp Dist" column in Table 1 lists the W* inspection distances measured with respect to BWT for tubes in which axial PWSCC was detected (in all cases, BWT was lower than the TTS).
3. **Elevation and length of axial indications within the flexible W* distance.** See "From-To" and "L" columns in Table 1 for elevation and length of axial indications.
4. **Angle of inclination of clearly skewed axial cracks (if applicable).** None of the axial indications were skewed, so the angle of inclination was reported as 0 degrees for all axial indications.
5. **The total steam line break leakage for the limiting steam generator per WCAP-14797.** Steam Line Break (SLB) leakage attributed to each W* indication at end of cycle (EOC) 9 (condition monitoring) and EOC 10 (operational assessment) are listed in "CM LR" and "OA LR" columns in Table 1. The limiting W* SLB leak rates for condition monitoring and operational assessment are 0.1468 gpm and 0.6330 gpm, respectively (see Table 2).

Table 2 reports the following SLB leak rates, pursuant to TS 4.4.5.5.e.4 and 4.4.5.5.f:

1. Total W* ARC SLB leakage for each SG at EOC 9.
2. Total W* ARC SLB leakage for each SG at EOC 10.
3. Total Generic Letter (GL) 95-05 voltage based ARC SLB leakage for each SG at EOC 9 and EOC 10.
4. The aggregate calculated SLB leakage from application of both ARC at EOC 9.
5. The aggregate calculated SLB leakage from application of both ARC at EOC 10.

Table 3 provides the updated cumulative probability distribution for growth of W* region axial PWSCC indications. The updated 95 percent cumulative probability DCCP Units 1 and 2 growth rate is 0.18 in./effective full power year (EFPY), and the distribution includes 28 data points (19 of which are Plus Point to Plus Point). The updated 95% cumulative probability combined industry data growth rate is 0.24 in./EFPY (which is lower than the prior 0.25 in./EFPY growth rate documented in WCAP-14797, Rev 1), and the distribution includes the 28 DCCP data points plus 31 data points from plants W1 and W2 documented in WCAP-14797, Rev 1. The W* operational assessment documented herein applies the 0.24 in./EFPY growth rate.

In-situ Leak Testing

In an effort to validate the leak rate model in WCAP-14797, Rev 1, three W* indications were in-situ leak tested in 2R9: SG 21 R3C59, SG 21 R7C62, and SG 22 R31C25. All three indications were in deplugged tubes. The in-situ guidelines for selecting indications for leak testing were established in PG&E letter DCL-98-148, "Response To NRC Request For Additional Information, Dated August 6, 1998, Regarding Proposed W* Steam Generator Tube Repair Criteria," dated October 22, 1998. The peak voltage for R3C59 and R31C25 exceeded the 4.0 volt critical voltage and the peak voltage for R31C35 was 3.99 volts (approximately 4 volts), requiring that all three indications be leak tested. The indications were locally tested to normal operating pressure differential. Because they did not leak, the test was terminated at that pressure. Plus Point inspections were performed again and verified that the indications satisfy the W* repair criteria. The indications were returned to service.

Tube Integrity Performance Monitoring

Performance Criteria to Limit Free Span Cracking: The upper crack tip of W* indications returned to service under W* ARC shall remain below the TTS by at least the NDE uncertainty on locating the crack tip relative to the TTS. The "UCT to TSH" column in Table 1 provides the elevation of the upper crack tip relative to the top of tubesheet, accounting for NDE uncertainty in locating the crack relative to the top of tubesheet. In all cases, the crack tip is below the top of tubesheet. Therefore, the performance criteria has been satisfied for condition monitoring at EOC 9.

Accident-Induced Leakage Performance Criteria: Calculated W* leak rates under postulated SLB conditions, when combined with calculated leak rates from application of GL 95-05 voltage-based ARC, shall not exceed 12.8 gpm (at room temperature) in the faulted SG for condition monitoring and operational assessment. Based on Table 2, the aggregate calculated SLB leakage from application of both ARC at EOC 9 is 0.4683 gpm for limiting SG 24, and 1.7247 gpm at EOC 10 for limiting SG 24. In both assessments, SLB leakage is less than the allowable limit of 12.8 gpm for a faulted SG. Therefore, the performance criteria has been satisfied for condition monitoring at EOC 9 and operational assessment at EOC 10.

Table 1
DCPP Unit 2 - 2R9 Axial PWSCC Indications in Hot Leg WEXTEX Region

SG	R	C	IND	+Pt volt	From	To	L	UCT to TSH	W* Zone	W* L	BWT	UCT to BWT	UCT Below W*	UCT Below BWT	EOC 10 UCT	UCT Below TSH at EOC10	W* Tube	Insp Ext	W* Insp Dist	Flex W* L	CM LR	EOC10 UCT- BWT	OA LR	Deplug	Plug
21	7	24	SAI	0.23	-1.92	-1.78	0.14	-1.56	B3	7.12	-0.26	1.24	No	Yes	-1.20	Yes	Yes	-21.4	21.05	7.48		-0.95	0.019	Yes	
21	8	32	SAI	0.48	-1.88	-1.79	0.09	-1.57	B2	7.12	-0.24	1.27	No	Yes	-1.21	Yes	Yes	-9.2	8.87	7.43	0.015	-0.98	0.019		
21	11	37	SAI	0.5	-7.49	-7.4	0.09	-7.18	B2	7.12	-0.32	6.8	No	Yes	-6.82	Yes	Yes	-9.31	8.9	7.63	0.0005	-6.51	0.0005		
21			SAI	0.68	-6.61	-6.48	0.13	-6.26	B2	7.12	-0.32	5.88	No	Yes	-5.90	Yes	Yes	-9.31	8.9	7.63	0.0005	-5.59	0.0008		
21			SAI	0.28	-2.02	-1.95	0.07	-1.73	B2	7.12	-0.32	1.35	No	Yes	-1.37	Yes	Yes	-9.31	8.9	7.63	0.015	-1.06	0.019		
21	11	39	SAI	1.27	-1.7	-1.58	0.14	-1.34	B1	7.12	-0.33	0.95	No	Yes	-0.98	Yes	Yes	-21.08	20.66	7.48		-0.68	0.023	Yes	
21	11	40	SAI	0.45	-0.98	-0.81	0.17	-0.59	B1	7.12	-0.34	0.19	No	Yes	-0.23	Yes	Yes	-9.46	9.03	7.51	0.038	0.10	0.045		
21	11	48	SAI	1.21	-4.86	-4.47	0.39	-4.25	B1	7.12	-0.31	3.88	No	Yes	-3.89	Yes	Yes	-9.36	8.96	7.73	0.005	-3.59	0.0055		
21	3	59	SAI	5.58	-1.39	-0.9	0.49	-0.68	B1	7.12	-0.39	0.23	No	Yes	-0.32	Yes	Yes	-21.4	20.92	7.83		0.06	0.045	Yes	
21	7	62	SAI	4.17	-2.13	-1.66	0.47	-1.44	B2	7.12	-1.07	0.31	No	Yes	-1.08	Yes	Yes	-21.4	20.24	7.81		-0.02	0.045	Yes	
21	28	62	SAI	0.31	-0.55	-0.46	0.09	-0.24	A	5.32	-0.27	-0.09	No	No	0.12	No	No	-9.96	9.6	5.63	0.043				Yes
21	23	70	SAI	0.9	-1.57	-1.24	0.33	-1.02	A	5.32	-0.12	0.84	No	Yes	-0.68	Yes	Yes	-21.4	21.19	5.87		-0.55	0.025	Yes	
21	6	77	SAI	1.31	-1.33	-1.2	0.13	-0.88	B4	7.12	-0.5	0.42	No	Yes	-0.62	Yes	Yes	-21.4	20.81	7.47		-0.13	0.041	Yes	
22	28	15	SAI	0.76	11.48	11.35	0.13	11.13	A	5.32	-0.49	10.58	Yes	Yes	10.77	Yes	Yes	-21.4	20.82	N/A		-10.29		Yes	
22			SAI	0.68	-2.53	-2.4	0.13	-2.18	A	5.32	-0.49	1.63	No	Yes	-1.82	Yes	Yes	-21.4	20.82	5.98		-1.34	0.007	Yes	
22			SAI	0.66	-2.04	-1.66	0.18	-1.64	A	5.32	-0.49	1.09	No	Yes	-1.28	Yes	Yes	-21.4	20.82	5.98		-0.80	0.013	Yes	
22	5	18	SAI	0.46	-1.14	-0.97	0.17	-0.75	B4	7.12	-0.3	0.39	No	Yes	-0.39	Yes	Yes	-11.04	10.65	7.51	0.03	-0.10	0.043		
22	31	25	SAI	3.89	-2.06	-1.59	0.47	-1.37	A	5.32	-0.61	0.70	No	Yes	-1.01	Yes	Yes	-21.4	20.7	6.01		-0.41	0.03	Yes	
22	13	43	SAI	1.03	-1.57	-1.36	0.21	-1.14	B1	7.12	-0.45	0.63	No	Yes	-0.78	Yes	Yes	-21.4	20.86	7.55		-0.34	0.031	Yes	
22	10	48	SAI	0.51	-3.17	-3.05	0.12	-2.83	B1	7.12	-0.31	2.46	No	Yes	-2.47	Yes	Yes	-9.04	8.64	7.48	0.0083	-2.17	0.0095		
22	10	56	SAI	0.96	-1.05	-0.90	0.15	-0.68	B1	7.12	-0.35	0.27	No	Yes	-0.32	Yes	Yes	-21.4	20.96	7.49		0.02	0.045	Yes	
23	28	12	SAI	0.72	-1.86	-1.7	0.16	-1.48	A	5.32	-0.59	0.83	No	Yes	-1.12	Yes	Yes	-8.88	8.2	5.70	0.012	-0.54	0.028		
23	9	22	SAI	0.26	-0.15	-0.01	0.14	0.21	B4	7.12	-0.45	-0.72	No	No	0.57	No	No	-8.19	7.65	7.48	0.043				Yes
23	14	24	SAI	0.59	-1.87	-1.64	0.23	-1.42	B4	7.12	-0.14	1.22	No	Yes	-1.06	Yes	Yes	-21.4	21.17	7.57		-0.93	0.015	Yes	
23	18	24	SAI	0.35	-1.39	-1.28	0.11	-1.06	B4	7.12	-0.24	0.76	No	Yes	-0.70	Yes	Yes	-21.4	21.07	7.45		-0.47	0.028	Yes	
23	25	37	SAI	2.41	-1.44	-0.98	0.48	-0.74	B4	7.12	-0.59	0.09	No	Yes	-0.38	Yes	Yes	-21.4	20.72	7.82		0.20	0.043	Yes	
23	45	37	SAI	1.65	-1.78	-1.27	0.49	-1.05	A	5.32	-0.36	0.63	No	Yes	-0.69	Yes	Yes	-21.4	20.95	6.03		-0.34	0.028	Yes	
23	21	38	SAI	1.17	-1.68	-1.09	0.59	-0.87	B3	7.12	-0.43	0.38	No	Yes	-0.51	Yes	Yes	-21.4	20.88	7.93		-0.09	0.04	Yes	
23	12	48	SAI	0.35	-2.09	-1.97	0.12	-1.75	B1	7.12	-0.35	1.34	No	Yes	-1.39	Yes	Yes	-21.4	20.96	7.46		-1.05	0.018	Yes	
23	5	51	SAI	0.3	-2.04	-1.94	0.1	-1.72	B1	7.12	-0.32	1.34	No	Yes	-1.36	Yes	Yes	-21.4	20.99	7.44		-1.05	0.018	Yes	
23	7	52	SAI	3.44	-1.61	-1.11	0.5	-0.89	B1	7.12	-0.15	0.68	No	Yes	-0.53	Yes	Yes	-21.4	21.16	7.84		-0.39	0.03	Yes	
23	5	55	SAI	0.51	-1.82	-1.72	0.1	-1.5	B1	7.12	-0.22	1.22	No	Yes	-1.14	Yes	Yes	-9.66	9.35	7.44	0.015	-0.93	0.015		
23	32	55	SAI	0.94	-1.22	-1.02	0.2	-0.8	A	5.32	-0.48	0.28	No	Yes	-0.44	Yes	Yes	-21.4	20.85	5.74		0.01	0.043	Yes	
23	7	59	SAI	0.96	-1.49	-1.17	0.32	-0.95	B1	7.12	-0.24	0.65	No	Yes	-0.59	Yes	Yes	-21.4	21.07	7.66		-0.38	0.031	Yes	
23	3	69	SAI	0.31	-1.16	-0.98	0.18	-0.76	B2	7.12	-0.29	0.41	No	Yes	-0.40	Yes	Yes	-8.71	9.33	7.52	0.03	-0.12	0.04		
23	19	71	SAI	1.22	-1.99	-1.59	0.4	-1.37	A	5.32	-0.32	0.99	No	Yes	-1.01	Yes	Yes	-21.4	20.89	5.94		-0.70	0.02	Yes	
23	17	72	SAI	1.75	-1.01	-0.60	0.41	-0.38	A	5.32	-0.25	0.07	No	Yes	-0.02	Yes	Yes	-21.4	21.06	5.95		0.22	0.043	Yes	

Enclosure 1
PG&E Letter DCL-00-008

SG	R	C	IND	+Pt volt	From	To	L	UCT to TSH	W* Zone	W* L	BWT	UCT to BWT	UCT Below W*	UCT Below BWT	EOC 10 UCT	UCT Below TSH at EOC10	W* Tube	Insp Ext	W* Insp Dist	Flex W* L	CMLR	EOC10 UCT- BWT	OA LR	Deplug	Plug
23	6	77	SAI	0.39	-1.6	-1.50	0.1	-1.28	B4	7.12	-0.34	0.88	No	Yes	-0.92	Yes	Yes	-21.4	20.97	7.44		-0.59	0.021	Yes	
23	21	83	SAI	1.39	-1.23	-0.90	0.33	-0.68	A	5.32	-0.31	0.31	No	Yes	-0.32	Yes	Yes	-21.4	21	5.87		-0.02	0.043	Yes	
23	2	91	SAI	0.61	-0.94	-0.59	0.35	-0.37	A	5.32	-0.12	0.19	No	Yes	-0.01	Yes	Yes	-21.4	21.19	5.89		0.10	0.043	Yes	
23	7	92	SAI	0.68	-1.22	-1.00	0.22	-0.78	A	5.32	-0.38	0.34	No	Yes	-0.42	Yes	Yes	-21.4	20.93	5.76		-0.05	0.043	Yes	
23	8	93	SAI	1.54	-0.95	-0.59	0.36	-0.37	A	5.32	-0.12	0.19	No	Yes	-0.01	Yes	Yes	-21.4	21.19	5.90		0.10	0.043	Yes	
24	7	4	SAI	1.02	-1.36	-1.15	0.21	-0.93	A	5.32	-0.26	0.61	No	Yes	-0.57	Yes	Yes	-21.4	21.05	5.75		-0.32	0.031	Yes	
24	13	4	SAI	0.44	-1.4	-1.27	0.13	-1.05	A	5.32	-0.41	0.58	No	Yes	-0.69	Yes	Yes	-9.21	8.71	5.87	0.023	-0.29	0.031		
24	3	5	SAI	1.1	-2	-0.97	1.03	-0.75	A	5.32	-0.34	0.35	No	Yes	-0.39	Yes	Yes	-21.4	20.97	6.57		-0.06	0.043	Yes	
24	2	10	SAI	0.61	-1.61	-1.5	0.11	-1.28	A	5.32	-0.1	1.12	No	Yes	-0.92	Yes	Yes	-21.4	21.21	5.65		-0.83	0.013	Yes	
24	15	10	SAI	0.47	-1.07	-0.8	0.27	-0.58	A	5.32	-0.36	0.16	No	Yes	-0.22	Yes	Yes	-21.4	20.85	5.81		0.13	0.043	Yes	
24	16	10	SAI	1.17	-2.57	-2.15	0.42	-1.93	A	5.32	-0.48	1.39	No	Yes	-1.57	Yes	Yes	-21.4	20.83	5.96		-1.10	0.009	Yes	
24	3	12	SAI	0.57	-2.98	-2.85	0.13	-2.63	A	5.32	-0.3	2.27	No	Yes	-2.27	Yes	Yes	-21.4	21.01	5.86		-1.86	0.004	Yes	
24			SAI	1.2	-2.61	-2.42	0.19	-2.2	A	5.32	-0.3	1.84	No	Yes	-1.84	Yes	Yes	-21.4	21.01	5.86		-1.55	0.006	Yes	
24	26	24	SAI	3.94	-2.42	-1.77	0.65	-1.55	A	5.32	-0.39	1.1	No	Yes	-1.19	No	No	-21.4	20.92	6.3				Yes	Yes
24			SAI	0.57	-0.49	-0.38	0.11	-0.16	A	5.32	-0.39	-0.29	No	No	0.20	No	No	-21.4	20.92	6.3				Yes	Yes
24	24	26	SAI	0.55	-1.93	-1.77	0.16	-1.55	A	5.32	-0.43	1.06	No	Yes	-1.19	Yes	Yes	-9.69	9.17	5.7	0.0083	-0.77	0.022		
24	2	29	SAI	1.7	-4.77	-3.85	0.92	-3.63	B2	7.12	-0.58	2.99	No	Yes	-3.27	Yes	Yes	-21.4	20.73	8.94		-2.70	0.007	Yes	
24			SAI	0.39	-3.56	-3.38	0.18	-3.16	B2	7.12	-0.58	2.52	No	Yes	-2.80	Yes	Yes	-21.4	20.73	8.94		-2.23	0.0082	Yes	
24			SAI	0.49	-2.48	-2.14	0.32	-1.92	B2	7.12	-0.58	1.28	No	Yes	-1.58	Yes	Yes	-21.4	20.73	8.94		-0.99	0.019	Yes	
24			SAI	0.23	-2.08	-2.03	0.05	-1.81	B2	7.12	-0.58	1.17	No	Yes	-1.45	Yes	Yes	-21.4	20.73	8.94		-0.88	0.02	Yes	
24			SAI	0.32	-2	-1.87	0.13	-1.65	B2	7.12	-0.58	1.01	No	Yes	-1.29	Yes	Yes	-21.4	20.73	8.94		-0.72	0.022	Yes	
24	6	33	SAI	0.4	-2.87	-2.75	0.12	-2.53	B2	7.12	-0.14	2.33	No	Yes	-2.17	Yes	Yes	-10.82	10.59	7.46	0.008	-2.04	0.009		
24	13	34	SAI	0.4	-0.14	-0.01	0.13	0.21	B2	7.12	-0.34	-0.61	No	No	0.57	No	No	-9.42	8.99	7.47	0.043				Yes
24	4	35	SAI	1.15	-1.79	-1.34	0.45	-1.12	B1	7.12	-0.24	0.82	No	Yes	-0.78	Yes	Yes	-21.4	21.07	7.79		-0.53	0.025	Yes	
24	6	35	SAI	0.91	-2.3	-2.14	0.16	-1.92	B1	7.12	-0.31	1.55	No	Yes	-1.56	Yes	Yes	-21.4	21	7.5		-1.26	0.015	Yes	
24	5	36	SAI	0.22	-1.53	-1.44	0.09	-1.22	B1	7.12	-0.17	0.99	No	Yes	-0.86	Yes	Yes	-8.45	8.19	7.43	0.019	-0.70	0.022		
24	5	37	SAI	0.36	-4.58	-4.43	0.15	-4.21	B1	7.12	-0.43	3.72	No	Yes	-3.85	Yes	Yes	-21.4	20.88	8.02		-3.43	0.006	Yes	
24			SAI	1.06	-4.4	-3.87	0.53	-3.65	B1	7.12	-0.43	3.16	No	Yes	-3.29	Yes	Yes	-21.4	20.88	8.02		-2.87	0.0075	Yes	
24	7	38	SAI	3.04	-7.16	-6.65	0.51	-6.43	B1	7.12	-0.35	6.02	No	Yes	-6.07	Yes	Yes	-21.4	20.86	8.58		-5.73	0.0009	Yes	
24			SAI	2.16	-4.73	-4	0.73	-3.78	B1	7.12	-0.35	3.37	No	Yes	-3.42	Yes	Yes	-21.4	20.86	8.58		-3.06	0.007	Yes	
24	13	40	SAI	1.35	-1.91	-1.48	0.43	-1.28	B2	7.12	-0.28	0.92	No	Yes	-0.90	Yes	Yes	-21.4	21.03	7.77		-0.63	0.023	Yes	
24	29	42	SAI	0.52	-0.23	-0.11	0.12	0.11	B4	7.12	-0.38	-0.55	No	No	0.47	No	No	-10.56	10.09	7.46	0.043				Yes
24	26	45	SAI	0.52	-3.78	-3.61	0.15	-3.39	B4	7.12	-0.38	2.97	No	Yes	-3.03	Yes	Yes	-10.52	10.07	7.49	0.0025	-2.68	0.0033		
24	31	45	SAI	1.59	-2.09	-1.57	0.52	-1.35	A	5.32	-0.34	0.85	No	Yes	-0.99	Yes	Yes	-21.4	20.97	6.06		-0.66	0.021	Yes	
24	20	47	SAI	0.55	-1.7	-1.54	0.16	-1.32	B2	7.12	-0.24	1.02	No	Yes	-0.96	Yes	Yes	-21.4	21.07	7.5		-0.73	0.021	Yes	
24	5	53	SAI	1.22	-2.03	-1.62	0.41	-1.4	B1	7.12	-0.32	1.02	No	Yes	-1.04	Yes	Yes	-20.86	20.45	7.75		-0.73	0.021	Yes	
24	25	64	SAI	1.54	-1.62	-1.16	0.46	-0.94	B4	7.12	-0.31	0.57	No	Yes	-0.58	Yes	Yes	-21.4	21	7.8		-0.28	0.02	Yes	

Column - Table 1	Legend and Notes for Table 1
SG	Steam generator
R	Row
C	Column
IND	Plus point indication. SAI is single axial indication. Some tubes have multiple non-parallel SAI.
+P Volt	Peak voltage from Plus Point coil.
From - To	Elevation (in.) of lower crack tip (from) to upper crack tip (to), relative to the hot leg top of tubesheet (TSH).
L	Length of crack (in.)
UCT to TSH	Elevation (in.) of the upper crack tip (UCT) relative to TSH, including ΔNDE_{CT-TTS} (Plus Point NDE uncertainty on locating the crack tip relative to the TTS). None of the indications extended above the top of tubesheet.
W* Zone	W* tubesheet zone based on crack location.
W* L	W* length based on W* Zone, plus ΔNDE_W (NDE uncertainty in measuring the W* depth).
BWT	Bottom of the WEXTEx transition (in.), measured by bobbin relative to TSH.
UCT to BWT	Distance (in.) from the upper crack tip (UCT) to BWT, minus ΔNDE_{CT-BWT} (Plus Point NDE uncertainty on locating the crack tip relative to the BWT).
UCT below W*	If the UCT is located below the W* length, then the tube is a W* tube. Any type of degradation below the W* length is acceptable.
UCT below BWT	If the UCT is located below BWT, then the tube is a W* candidate.
EOC 10 UCT	UCT location (in.) relative to TSH at the end of the next operating cycle, EOC 10, based on growing the UCT at 0.25 in./EFPY. Unit 2 Cycle 10 is projected to be 1.44 EFpy.
UCT below TSH at EOC 10	If the UCT is below TSH at EOC 10, a free span indication is precluded and the tube is a W* candidate.
W* Tube	If the UCT is below BWT and the UCT is below TSH at EOC 10, then the tube is a W* tube. If the UCT is located below the W* length, then the tube is a W* tube.
Insp Ext	Inspection extent of Plus Point relative to TSH (in.).
W* Insp Dist	W* inspection distance (in.). This is the +Point inspection extent relative to BWT. The W* inspection distance below BWT is equal to the Plus Point inspection extent below TSH, plus measured distance from BWT to TSH, plus bobbin NDE uncertainty in locating BWT relative to TSH. The W* inspection distance must be greater than or equal to the flexible W* length.
Flex W* L	Flexible W* length relative to BWT (in.), equal to $W^* \text{ Length} + \sum C_i$ (total axial crack length) + $N_{\alpha} \cdot \Delta NDE_{\alpha}$ (number of indications times Plus Point NDE uncertainty with measuring length of axial cracks) + $N_{\alpha} \cdot \Delta CG$ (number of indications times crack growth allowance from prior cycle tube integrity assessment, 0.25 in./EFpy)
CM LR	Condition monitoring SLB leak rate at EOC 9 conditions, gpm at room temperature, based on distance of UCT to BWT using Figure 6.4-3 of WCAP-14797 Rev 1. No accident leakage is assigned to an indication with an UCT below the W* length. No accident leakage is assigned to an indication in a tube unplugged and returned to service.
EOC 10 UCT to	Distance of UCT to BWT (in.) at EOC 10 for operational assessment, based on growing the UCT at the latest updated

Column - Table 1	Legend and Notes for Table 1
BWT	Industry combined 95% growth rate (0.24 in./EPY).
OA LR	Operational assessment leak rate at EOC 10 conditions, gpm at room temperature, based on distance of UCT (at EOC 10) to BWT using Figure 6.4-3 of WCAP-14797 Rev 1.
Deplug	Tube was unplugged in 2R9.
Plug	Tube was plugged in 2R9.

Table 2

DCPP Unit 2 Steam Line Break Leak Rates for Alternate Repair Criteria

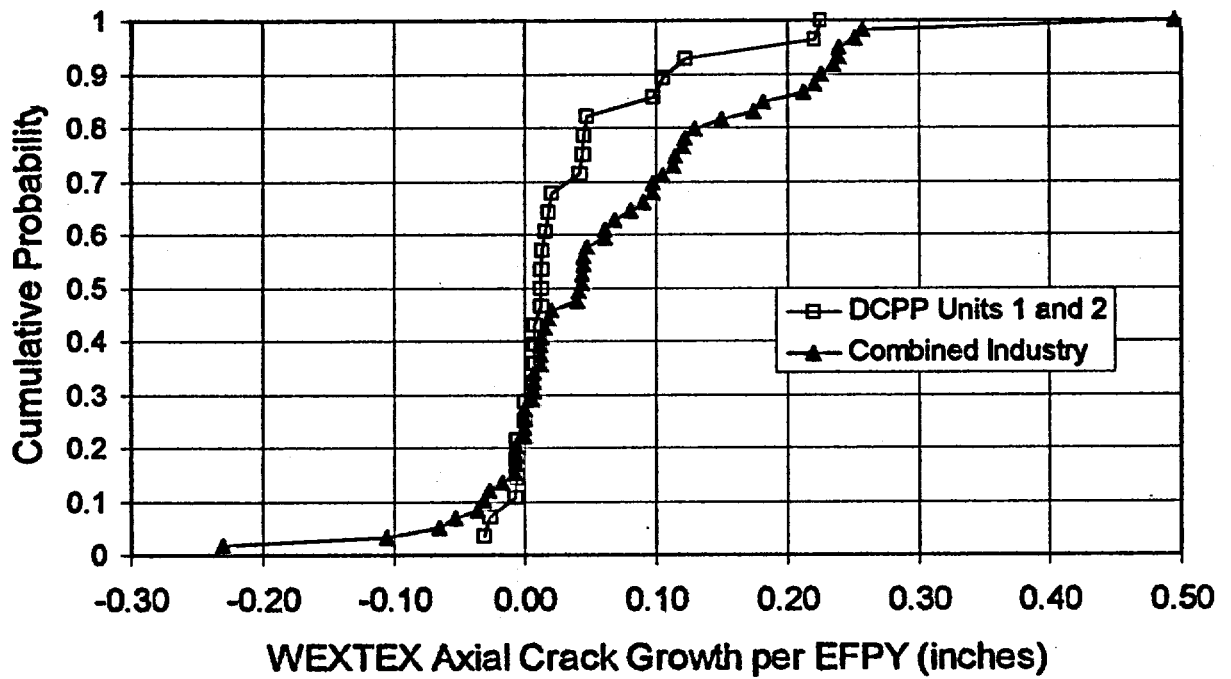
EOC 9 Condition Monitoring Leak Rate (gpm at room temperature)	SG 2-1	SG 2-2	SG 2-3	SG 2-4
W* ARC	0.1170	0.0383	0.1000	0.1468
Voltage-Based ARC	0.0627	0.0244	0.0312	0.3215
Aggregate ARC	0.1797	0.0627	0.1312	0.4683

EOC 10 Operational Assessment Leak Rate (gpm at room temperature)	SG 2-1	SG 2-2	SG 2-3	SG 2-4
W* ARC	0.2818	0.1765	0.6330	0.4799
Voltage-Based ARC	0.2349	0.1267	0.1500	1.2448
Aggregate ARC	0.5167	0.3032	0.783	1.7247

Table 3

DCPP Unit 2 Cycle 10 Growth Rate for Axial PWSCC in W* Region

**Cumulative Probability Distribution for Growth of Axial
PWSCC Indications In W* Region**



SPECIAL REPORT 00-01

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DIABLO CANYON POWER PLANT
UNIT 2 NINTH REFUELING OUTAGE**