FENOC™
FirstEnergy Nuclear Operating Company

5501 North State Route 2
Oak Harbor, Ohio 43449

Brian D. Boles
Vice President,
Nuclear

419-321-7676
Fax: 419-321-7582

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L-16-288

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT:
Davis-Besse Nuclear Power Station, Unit No. 1
Docket No. 50-346, License No. NPF-3
Technical Specification 5.6.6 Steam Generator Tube Inspection 180-Day Report

The FirstEnergy Nuclear Operating Company (FENOC), in accordance with the Davis-Besse Nuclear Power Station, Unit 1 (DBNPS) Technical Specification 5.6.6, "Steam Generator Tube Inspection Report," hereby submits a report of the steam generator tube inspections performed pursuant to Technical Specification 5.5.8, "Steam Generator (SG) Program." The attached report summarizes the steam generator tube inspections performed during the DBNPS spring 2016 outage.

Also included is response to FENOC letter dated August 31, 2009 (ML092450685) for a commitment to provide the structural limit associated with the most limiting large break loss of coolant accident for the replacement steam generators.

There are no regulatory commitments contained in this letter. If there are any questions or if additional information is required, please contact Mr. Thomas A. Lentz, Manager-Fleet Licensing (330) 315-6810.

Sincerely,

Brian D. Boles

Attachment:
Davis-Besse Nuclear Power Station Steam Generator Tube Inspection Report

CC: NRC Region III Administrator
NRC Resident Inspector
NRC Project Manager
Utility Radiological Safety Board

Following completion of a steam generator inspection performed in accordance with the Davis-Besse Nuclear Power Station, Unit 1 (DBNPS) Technical Specification (TS) 5.5.8, “Steam Generator (SG) Program,” TS 5.6.6, “Steam Generator Tube Inspection Report,” requires a report of the inspection to be submitted to the Nuclear Regulatory Commission within 180 days after the initial entry into MODE 4. This report summarizes the steam generator tube inspection performed during the DBNPS spring 2016 Nineteenth Refueling Outage (1R19).

The organization of the report is as follows:

Section 1 Scope of Inspections Performed on Each SG (TS 5.6.6.a);
Section 2 Degradation Mechanisms Found (TS 5.6.6.b);
Section 3 Nondestructive Examination Techniques Utilized for Each Degradation Mechanism (TS 5.6.6.c);
Section 4 Location, Orientation (if Linear), and Measured Sizes (if Available) of Service Induced Indications (TS 5.6.6.d);
Section 5 Number of Tubes Plugged During the Inspection Outage for Each Degradation Mechanism (TS 5.6.6.e);
Section 6 The Number and Percentage of Tubes Plugged to Date, and the Effective Plugging Percentage in Each SG (TS 5.6.6.f);
Section 7 The Results of Condition Monitoring, Including the Results of Tube Pulls and In-Situ Testing (TS 5.6.6.g);

Also included is response to FENOC letter dated August 31, 2009 (ML092450685) for a commitment to provide the structural limit associated with the most limiting large break loss of coolant accident for the replacement steam generators.

Section 8 Replacement SG Tubing Structural Limit Associated with the Most Limiting LBLOCA for the Replacement SG

The following is a listing of the more common acronyms and abbreviations that are used throughout this report.

%TW	Percent Through-Wall
EPRI	Electric Power Research Institute
INCH	Location of indication, in inches, relative to TSP reference
LBLOCA	Large Break Loss of Coolant Accident
PDA	Percent Degraded Area
Rev.	Revision
SG	Steam Generator
TS	Technical Specifications
TSP	Tube Support Plate
xxS	Tube Support Plate Number

Section 1

Scope of Inspections Performed on each SG (TS 5.6.6.a)

EXAM SCOPE	SG 2A	SG 1B
Eddy Current		
Full length, bobbin probe [inservice tubes]	15606	15607
Special interest, array probe [inspections]	145	53
Special interest, rotating-coil probe [inspection(s)]	1	7
Visual		
Previously installed tube plugs	2	0
Channel head, general	2	2

Section 2

Degradation Mechanisms Found (TS 5.6.6.b)

Degradation Mechanism	SG 2A	SG 1B
Wear, broached TSP [indications]	627	67
Wear, drilled TSP [indication(s)]	1	3

Section 3

Nondestructive Examination Techniques Utilized for Each Degradation Mechanism (TS 5.6.6.c)

The eddy current examinations were performed utilizing various eddy current probes. All examination techniques utilized were qualified for detection of the relevant degradation mechanisms. This qualification is in accordance with the EPRI SG Examination Guidelines, Revision 7. The applicable Examination Technique Specification Sheets (ETSS) are listed for reference only. Site-specific examination technique sheets are developed prior to each steam generator inspection in accordance with Appendix H or I (as applicable) of the EPRI SG Examination Guidelines, Revision 7.

Degradation Mechanism	Applicability	Probe Type	Industry Qualification
Wear	TSP	Bobbin	96004.1 Rev. 13
Wear	Drilled TSP	Bobbin	I-96042.1 Rev. 4
Wear	Broached TSP single contact, multiple contact, and tapered	Bobbin	I-96043.1 Rev. 2
Wear	Broached TSP	Array	11956.3 Rev. 2 11956.4 Rev. 2
Wear	Broached and Drilled TSP	Rotating-coil	96910.1 Rev. 10

Section 4

Location, Orientation (if Linear), and Measured Sizes (if Available) of Service Induced Indications (TS 5.6.6.d)

Wear at broached TSPs

SG	Row	Tube	TSP	INCH	%TW
2A	86	1	16S	-0.41	39
2A	117	110	16S	-0.34	35
2A	10	1	16S	-0.33	34
2A	4	1	16S	-0.3	32
2A	8	1	16S	-0.32	31
2A	89	1	16S	-0.33	31
2A	118	109	16S	-0.4	30
2A	148	2	14S	-0.67	29
2A	1	16	16S	-0.39	28
2A	3	1	16S	-0.82	28
2A	76	131	16S	-0.71	27
2A	87	127	16S	-0.35	27
2A	101	124	16S	-0.39	27
2A	7	1	16S	-0.33	26
2A	66	1	16S	-0.29	26
2A	137	1	16S	-0.44	26
2A	149	1	14S	-0.78	26
2A	68	131	16S	-0.84	25
2A	76	130	16S	-0.38	25
2A	142	1	16S	-0.35	25
2A	71	130	16S	-0.32	24
2A	79	1	16S	0.18	24
2A	92	129	16S	-0.41	24
2A	95	128	16S	-0.35	24
2A	99	126	16S	-0.39	24
2A	119	108	16S	-0.42	24
2A	120	107	16S	-0.37	24
2A	124	101	16S	-0.35	24
2A	5	1	16S	-0.32	23
2A	27	74	15S	-0.7	23
2A	73	1	16S	-0.31	23
2A	84	129	16S	-0.36	23
2A	91	129	16S	-0.35	23
2A	95	127	16S	-0.4	23
2A	2	16	16S	0.22	22

Wear at broached TSPs (Continued)

SG	Row	Tube	TSP	INCH	%TW
2A	6	1	16S	-0.63	22
2A	11	1	16S	-0.37	22
2A	12	1	16S	-0.35	22
2A	13	1	16S	-0.35	22
2A	16	1	16S	-0.39	22
2A	48	20	15S	-0.84	22
2A	69	130	16S	-0.36	22
2A	70	131	16S	-0.37	22
2A	72	129	16S	-0.4	22
2A	72	131	16S	-0.34	22
2A	73	3	15S	-0.82	22
2A	78	129	16S	-0.35	22
2A	106	121	16S	-0.39	22
2A	108	119	16S	-0.4	22
2A	125	100	16S	-0.39	22
2A	145	2	14S	-0.72	22
2A	148	1	14S	-0.78	22
2A	150	5	16S	-0.33	22
2A	65	11	15S	-0.73	21
2A	77	129	16S	-0.33	21
2A	2	15	16S	0	20
2A	51	5	15S	-0.82	20
2A	53	10	15S	-0.84	20
2A	68	131	13S	0.22	20
2A	89	126	16S	-0.36	20
2A	92	128	16S	-0.69	20
2A	113	41	16S	-0.78	20
2A	120	107	13S	0	20
2A	136	59	15S	0.19	20
2A	147	1	14S	-0.7	20
2A	150	4	16S	-0.37	20
2A	2	27	16S	-0.39	19
2A	3	20	16S	-0.78	19
2A	31	106	16S	-0.43	19
2A	53	1	16S	-0.81	19
2A	74	131	16S	0.04	19
2A	76	129	16S	-0.77	19
2A	78	131	16S	-0.78	19
2A	83	6	14S	0.26	19
2A	83	132	13S	-0.71	19
2A	84	1	16S	-0.34	19

Wear at broached TSPs (Continued)

SG	Row	Tube	TSP	INCH	%TW
2A	90	128	16S	-0.76	19
2A	97	126	16S	-0.75	19
2A	98	124	16S	-0.33	19
2A	107	120	16S	-0.44	19
2A	111	41	16S	-0.77	19
2A	130	1	16S	-0.3	19
2A	146	2	16S	-0.69	19
2A	146	2	14S	-0.76	19
2A	148	3	14S	-0.78	19
2A	151	11	16S	-0.88	19
2A	151	16	16S	-0.74	19
2A	27	74	15S	0.21	18
2A	31	6	15S	-0.36	18
2A	43	27	16S	-0.72	18
2A	67	8	15S	-0.88	18
2A	78	127	16S	-0.87	18
2A	83	131	16S	-0.81	18
2A	89	127	16S	-0.35	18
2A	106	120	16S	-0.74	18
2A	142	14	15S	0.2	18
2A	144	1	14S	-0.68	18
2A	145	18	15S	0.2	18
2A	148	5	16S	-0.71	18
2A	150	13	16S	-0.7	18
2A	151	7	16S	-0.32	18
2A	2	2	16S	0.1	17
2A	7	16	15S	-0.22	17
2A	18	1	16S	0.24	17
2A	22	1	16S	0	17
2A	29	92	15S	-0.15	17
2A	44	5	15S	-0.82	17
2A	50	5	15S	-0.73	17
2A	63	130	16S	-0.47	17
2A	82	131	16S	-0.81	17
2A	83	1	14S	0.26	17
2A	86	123	16S	-0.3	17
2A	86	129	16S	-0.81	17
2A	89	129	16S	-0.76	17
2A	90	129	16S	-0.42	17
2A	94	128	16S	-0.88	17

Wear at broached TSPs (Continued)

SG	Row	Tube	TSP	INCH	%TW
2A	96	127	16S	-0.84	17
2A	99	125	16S	-0.32	17
2A	100	125	16S	-0.41	17
2A	104	121	16S	-0.35	17
2A	111	115	16S	-0.74	17
2A	113	44	16S	-0.8	17
2A	113	114	16S	-0.9	17
2A	123	5	14S	-0.72	17
2A	133	61	15S	-0.86	17
2A	140	70	16S	-0.41	17
2A	145	14	15S	0.2	17
2A	146	25	16S	-0.66	17
2A	147	8	16S	-0.7	17
2A	150	5	14S	-0.75	17
2A	150	11	16S	-0.74	17
2A	150	12	16S	-0.7	17
2A	150	17	16S	0.17	17
2A	15	1	16S	-0.71	16
2A	17	23	15S	-0.73	16
2A	23	66	15S	-0.73	16
2A	32	107	16S	-0.24	16
2A	45	120	16S	-0.34	16
2A	48	123	16S	-0.41	16
2A	49	7	16S	-0.8	16
2A	52	10	15S	-0.91	16
2A	58	5	15S	-0.85	16
2A	62	12	15S	-0.73	16
2A	63	129	16S	-0.35	16
2A	64	13	15S	-0.78	16
2A	66	11	15S	0.18	16
2A	66	131	13S	-0.73	16
2A	71	2	16S	-0.33	16
2A	72	48	16S	-0.63	16
2A	73	1	13S	-0.21	16
2A	73	46	16S	-0.92	16
2A	73	131	16S	-0.67	16
2A	81	1	16S	0.15	16
2A	81	129	16S	-0.85	16
2A	82	129	16S	-0.83	16
2A	85	128	16S	-0.85	16
2A	86	127	16S	-0.31	16
2A	87	129	16S	-0.73	16

Water at Broached TSPs (Continued)

SG	Row	Tube	TSP	INCH	%TW
2A	96	125	16S	-0.84	16
2A	104	85	15S	-0.75	16
2A	112	50	16S	-0.64	16
2A	113	83	15S	-0.78	16
2A	120	43	16S	-0.65	16
2A	134	50	15S	0.19	16
2A	137	77	16S	-0.35	16
2A	139	70	16S	-0.82	16
2A	142	1	14S	-0.65	16
2A	144	12	15S	-0.83	16
2A	145	1	14S	-0.73	16
2A	145	5	16S	-0.8	16
2A	146	1	14S	-0.8	16
2A	146	24	15S	0.13	16
2A	147	2	14S	-0.71	16
2A	149	2	16S	-0.35	16
2A	149	5	16S	-0.63	16
2A	2	1	16S	-0.73	15
2A	20	11	15S	-0.85	15
2A	30	7	15S	-0.78	15
2A	38	10	15S	-0.86	15
2A	42	5	16S	-0.9	15
2A	43	4	15S	-0.74	15
2A	45	7	15S	-0.8	15
2A	52	6	15S	-0.86	15
2A	53	10	16S	-0.75	15
2A	54	12	15S	-0.77	15
2A	55	126	16S	-0.87	15
2A	60	112	15S	-0.75	15
2A	60	129	16S	-0.33	15
2A	65	4	16S	0.2	15
2A	66	130	11S	0.35	15
2A	74	129	16S	-0.83	15
2A	75	2	14S	-0.75	15
2A	78	1	14S	-0.79	15
2A	80	131	16S	-0.85	15
2A	88	129	16S	-0.82	15
2A	91	115	16S	-0.68	15
2A	91	128	16S	-0.74	15

Water at Broached TSPs (Continued)

SG	Row	Tube	TSP	INCH	%TW
2A	105	122	16S	-0.81	15
2A	109	117	16S	-0.74	15
2A	113	40	16S	-0.91	15
2A	118	46	16S	-0.76	15
2A	121	32	13S	-0.72	15
2A	121	43	16S	-0.65	15
2A	129	1	14S	-0.68	15
2A	129	94	16S	-0.89	15
2A	130	1	14S	-0.78	15
2A	134	1	14S	-0.69	15
2A	136	1	14S	-0.78	15
2A	138	2	14S	-0.69	15
2A	144	1	16S	-0.34	15
2A	144	44	16S	-0.71	15
2A	147	10	16S	-0.65	15
2A	147	16	16S	-0.6	15
2A	148	2	16S	-0.66	15
2A	149	9	16S	-0.77	15
2A	150	1	14S	-0.65	15
2A	1	5	14S	0	14
2A	4	1	14S	-0.7	14
2A	4	20	16S	-0.64	14
2A	20	1	16S	-0.98	14
2A	20	76	14S	-0.69	14
2A	31	19	15S	-0.78	14
2A	41	105	15S	-0.31	14
2A	43	118	11S	0.29	14
2A	47	5	15S	-0.82	14
2A	53	110	15S	-0.72	14
2A	54	1	16S	-0.77	14
2A	58	1	16S	-0.71	14
2A	69	12	16S	-0.76	14
2A	71	1	16S	-0.31	14
2A	73	129	16S	-0.96	14
2A	82	6	14S	0.26	14
2A	83	132	11S	-0.69	14
2A	86	122	16S	-0.33	14
2A	87	126	16S	-0.73	14

Water at Broached TSPs (Continued)

SG	Row	Tube	TSP	INCH	%TW
2A	88	2	14S	-0.8	14
2A	88	127	16S	-0.72	14
2A	89	119	15S	-0.82	14
2A	89	130	16S	-0.85	14
2A	107	87	15S	-0.78	14
2A	107	95	15S	0.22	14
2A	110	54	16S	-0.77	14
2A	111	87	15S	-0.8	14
2A	112	112	15S	0.11	14
2A	112	116	16S	-0.74	14
2A	114	38	16S	-0.71	14
2A	115	114	16S	-0.38	14
2A	116	37	16S	-0.68	14
2A	116	48	16S	-0.87	14
2A	125	78	15S	-0.66	14
2A	128	95	16S	-0.82	14
2A	131	1	14S	-0.77	14
2A	132	65	15S	-0.85	14
2A	133	1	14S	-0.7	14
2A	137	1	14S	-0.8	14
2A	137	53	15S	-0.84	14
2A	137	76	16S	-0.72	14
2A	138	13	16S	-0.74	14
2A	138	26	16S	-0.77	14
2A	142	19	15S	0.21	14
2A	143	12	16S	-0.62	14
2A	144	5	16S	-0.72	14
2A	145	38	16S	-0.62	14
2A	150	2	14S	-0.6	14
2A	151	2	16S	-0.69	14
2A	2	11	16S	0	13
2A	8	35	15S	0.19	13
2A	18	1	14S	-0.71	13
2A	21	10	15S	-0.78	13
2A	21	90	16S	-0.34	13
2A	24	95	16S	-0.32	13
2A	27	100	16S	-0.36	13
2A	36	85	16S	-0.77	13
2A	41	24	16S	-0.61	13

Water at Broached TSPs (Continued)

SG	Row	Tube	TSP	INCH	%TW
2A	43	31	16S	-0.83	13
2A	46	26	16S	-0.85	13
2A	47	95	15S	0.21	13
2A	52	4	15S	-0.8	13
2A	52	4	15S	0.22	13
2A	60	12	15S	-0.86	13
2A	69	41	16S	-0.59	13
2A	70	129	16S	-0.82	13
2A	73	41	16S	-0.68	13
2A	74	130	16S	-0.86	13
2A	75	119	15S	-0.28	13
2A	75	131	16S	-0.75	13
2A	77	2	14S	0.26	13
2A	77	130	16S	-0.72	13
2A	78	1	14S	0.31	13
2A	78	1	13S	0.29	13
2A	79	2	14S	-0.78	13
2A	79	130	16S	-0.81	13
2A	79	131	16S	-0.85	13
2A	80	129	16S	-0.84	13
2A	81	112	15S	-0.81	13
2A	81	131	16S	-0.85	13
2A	83	1	13S	0.26	13
2A	86	125	16S	-0.77	13
2A	86	126	16S	-0.81	13
2A	86	130	16S	-0.76	13
2A	87	120	16S	-0.7	13
2A	87	122	16S	-0.7	13
2A	87	130	16S	-0.82	13
2A	88	130	16S	-0.77	13
2A	90	125	16S	-0.71	13
2A	91	117	15S	0.24	13
2A	94	127	16S	-0.77	13
2A	96	118	16S	-0.33	13
2A	96	124	16S	-0.31	13
2A	101	123	16S	-0.77	13
2A	102	56	16S	-0.83	13
2A	102	91	15S	-0.78	13
2A	105	60	16S	-0.67	13
2A	105	121	16S	-0.8	13
2A	108	118	16S	-0.33	13
2A	109	40	16S	-0.76	13

Water at Broached TSPs (Continued)

SG	Row	Tube	TSP	INCH	%TW
2A	109	58	16S	-0.79	13
2A	110	116	16S	-0.84	13
2A	112	114	16S	-0.89	13
2A	113	92	15S	-0.84	13
2A	117	50	16S	-0.75	13
2A	118	45	16S	-0.8	13
2A	122	105	16S	-0.25	13
2A	126	92	16S	0.16	13
2A	140	38	15S	-0.89	13
2A	141	16	16S	-0.74	13
2A	142	14	16S	-0.72	13
2A	143	13	16S	-0.69	13
2A	145	3	14S	-0.77	13
2A	147	2	16S	-0.67	13
2A	149	3	14S	-0.72	13
2A	149	3	16S	-0.74	13
2A	149	4	14S	-0.75	13
2A	149	15	16S	-0.71	13
2A	150	3	16S	-0.78	13
2A	150	10	16S	-0.71	13
2A	1	13	12S	-0.56	12
2A	2	19	12S	-0.78	12
2A	8	14	15S	-0.72	12
2A	15	63	15S	-0.78	12
2A	17	52	15S	-0.8	12
2A	20	1	16S	0.22	12
2A	25	50	15S	-0.78	12
2A	25	50	15S	0.14	12
2A	25	83	16S	-0.69	12
2A	27	73	15S	0.2	12
2A	31	64	15S	-0.73	12
2A	31	93	15S	-0.77	12
2A	32	39	14S	-0.85	12
2A	33	77	15S	0.26	12
2A	34	6	15S	0.17	12
2A	38	3	16S	-0.53	12
2A	40	5	15S	-0.87	12
2A	40	8	15S	0.13	12
2A	55	4	15S	-0.79	12
2A	55	125	16S	-0.86	12
2A	62	119	15S	0.26	12
2A	63	113	15S	-0.75	12

Water at Broached TSPs (Continued)

SG	Row	Tube	TSP	INCH	%TW
2A	63	120	16S	-0.7	12
2A	65	129	16S	-0.82	12
2A	67	22	16S	-0.77	12
2A	67	128	16S	-0.85	12
2A	68	113	15S	-0.73	12
2A	69	1	14S	-0.77	12
2A	69	132	13S	-0.73	12
2A	70	130	16S	-0.87	12
2A	74	8	15S	-0.87	12
2A	75	1	14S	-0.73	12
2A	75	127	16S	-0.74	12
2A	76	124	16S	-0.85	12
2A	77	131	16S	-0.84	12
2A	79	2	14S	0.26	12
2A	79	3	16S	0.18	12
2A	82	127	16S	-0.83	12
2A	82	128	16S	-0.85	12
2A	83	127	16S	-0.81	12
2A	84	1	14S	0.28	12
2A	84	127	16S	-0.81	12
2A	87	124	16S	-0.32	12
2A	88	127	16S	0.19	12
2A	89	123	16S	-0.91	12
2A	91	123	16S	-0.36	12
2A	91	127	16S	-0.62	12
2A	92	106	15S	-0.76	12
2A	93	126	16S	-0.76	12
2A	95	126	16S	-0.86	12
2A	98	1	14S	-0.78	12
2A	100	100	15S	-0.74	12
2A	101	88	15S	0.18	12
2A	103	120	16S	-0.78	12
2A	104	122	16S	-0.77	12
2A	105	119	16S	-0.79	12
2A	111	93	15S	0.22	12
2A	112	84	15S	0.19	12
2A	117	36	16S	-0.86	12
2A	118	41	16S	-0.69	12
2A	118	84	15S	-0.75	12
2A	123	42	16S	-0.72	12
2A	125	61	15S	-0.66	12
2A	127	1	16S	-0.77	12

Water at Broached TSPs (Continued)

SG	Row	Tube	TSP	INCH	%TW
2A	127	45	16S	-0.75	12
2A	128	63	15S	0.21	12
2A	136	17	16S	-0.77	12
2A	137	15	15S	0.16	12
2A	139	54	15S	0.17	12
2A	141	12	16S	-0.72	12
2A	144	9	16S	-0.67	12
2A	145	1	16S	-0.86	12
2A	145	15	15S	0.17	12
2A	145	17	16S	-0.72	12
2A	148	36	16S	-0.7	12
2A	149	16	16S	-0.72	12
2A	149	17	16S	-0.8	12
2A	150	8	16S	-0.74	12
2A	9	1	16S	-0.8	11
2A	17	8	15S	-0.76	11
2A	19	8	15S	-0.83	11
2A	19	86	16S	-0.84	11
2A	20	76	15S	-0.82	11
2A	21	56	15S	-0.82	11
2A	22	9	15S	-0.85	11
2A	26	89	15S	0.18	11
2A	28	58	15S	-0.79	11
2A	38	93	15S	-0.75	11
2A	44	119	11S	0.35	11
2A	52	125	16S	-0.85	11
2A	54	4	16S	-0.82	11
2A	59	102	16S	-0.77	11
2A	60	111	15S	0.24	11
2A	61	114	15S	-0.84	11
2A	64	129	16S	-0.88	11
2A	65	4	16S	-0.88	11
2A	65	10	15S	0.26	11
2A	65	130	13S	0.26	11
2A	65	130	16S	-0.82	11
2A	67	129	16S	0.18	11
2A	68	46	16S	-0.63	11
2A	68	109	15S	0.24	11
2A	68	129	16S	-0.79	11
2A	69	14	16S	-0.69	11
2A	71	45	16S	-0.84	11
2A	73	1	14S	-0.67	11

Water at Broached TSPs (Continued)

SG	Row	Tube	TSP	INCH	%TW
2A	73	2	14S	-0.72	11
2A	73	3	16S	-0.98	11
2A	74	1	14S	-0.75	11
2A	77	2	14S	-0.82	11
2A	77	2	13S	-0.7	11
2A	78	1	16S	0.18	11
2A	78	106	15S	-0.79	11
2A	78	116	15S	0.22	11
2A	81	130	16S	-0.94	11
2A	83	128	16S	-0.87	11
2A	84	45	16S	-0.62	11
2A	84	124	16S	-0.69	11
2A	84	126	16S	0.11	11
2A	84	131	16S	-0.89	11
2A	86	128	16S	-0.84	11
2A	88	116	15S	-0.71	11
2A	88	121	16S	-0.36	11
2A	90	127	16S	-0.83	11
2A	91	3	14S	-0.75	11
2A	93	1	14S	-0.26	11
2A	96	126	16S	-0.76	11
2A	102	115	16S	-0.32	11
2A	103	2	14S	-0.71	11
2A	103	44	16S	-0.34	11
2A	103	119	16S	-0.32	11
2A	103	123	16S	0	11
2A	104	2	14S	-0.78	11
2A	106	85	15S	0.24	11
2A	107	94	15S	-0.69	11
2A	108	86	15S	0.19	11
2A	108	99	15S	-0.84	11
2A	111	39	16S	-0.84	11
2A	111	113	16S	-0.81	11
2A	113	115	16S	-0.91	11
2A	116	110	16S	-0.65	11
2A	117	40	16S	-0.93	11
2A	117	109	16S	-0.28	11
2A	118	35	16S	-0.69	11
2A	119	37	16S	-0.61	11
2A	121	58	15S	0.17	11
2A	123	1	14S	-0.75	11
2A	123	92	15S	0.2	11

Water at Broached TSPs (Continued)

SG	Row	Tube	TSP	INCH	%TW
2A	124	40	16S	-0.75	11
2A	124	63	16S	-0.77	11
2A	127	1	14S	-0.78	11
2A	127	64	15S	0.19	11
2A	133	2	14S	-0.77	11
2A	133	22	13S	0.29	11
2A	133	36	16S	-0.83	11
2A	135	69	16S	-0.74	11
2A	135	77	16S	0.11	11
2A	137	69	16S	0.19	11
2A	139	11	16S	-0.73	11
2A	139	66	16S	0.15	11
2A	141	10	16S	-0.75	11
2A	141	13	15S	-0.75	11
2A	141	14	16S	-0.7	11
2A	142	13	16S	-0.69	11
2A	144	4	14S	-0.65	11
2A	144	20	15S	0.21	11
2A	144	46	16S	-0.63	11
2A	144	56	16S	0.15	11
2A	145	10	16S	-0.64	11
2A	146	15	16S	-0.75	11
2A	147	20	16S	-0.63	11
2A	148	6	16S	-0.65	11
2A	148	12	16S	-0.67	11
2A	148	38	16S	-0.75	11
2A	149	12	16S	-0.68	11
2A	151	1	14S	-0.8	11
2A	26	72	15S	0.2	10
2A	27	63	15S	0.21	10
2A	30	7	15S	0.24	10
2A	35	86	15S	-0.83	10
2A	38	92	15S	-0.79	10
2A	51	8	15S	0.17	10
2A	51	124	16S	-0.94	10
2A	52	7	15S	-0.8	10
2A	53	1	16S	0.13	10
2A	57	128	16S	-0.83	10
2A	58	5	16S	-0.66	10
2A	61	41	16S	-0.57	10
2A	63	43	16S	-0.94	10

Water at Broached TSPs (Continued)

SG	Row	Tube	TSP	INCH	%TW
2A	65	7	15S	-0.8	10
2A	65	108	15S	-0.79	10
2A	65	113	15S	0.27	10
2A	66	124	16S	-0.86	10
2A	68	23	16S	-0.76	10
2A	68	24	16S	0.14	10
2A	69	12	16S	0.2	10
2A	69	128	16S	-0.78	10
2A	70	23	16S	-0.74	10
2A	70	113	15S	-0.81	10
2A	72	109	15S	0.23	10
2A	72	121	16S	-0.84	10
2A	73	3	16S	0.18	10
2A	73	113	15S	-0.77	10
2A	74	102	15S	-0.84	10
2A	74	131	13S	-0.75	10
2A	76	126	16S	-0.77	10
2A	76	127	16S	-0.84	10
2A	77	111	15S	0.19	10
2A	79	122	16S	0.2	10
2A	79	129	16S	-0.87	10
2A	82	114	15S	-0.76	10
2A	82	120	16S	-0.83	10
2A	84	1	14S	-0.78	10
2A	84	118	15S	-0.74	10
2A	86	1	14S	-0.79	10
2A	86	131	16S	-0.77	10
2A	88	2	14S	0.23	10
2A	88	55	16S	-0.91	10
2A	91	122	16S	0.19	10
2A	92	93	14S	0.28	10
2A	94	93	16S	-0.74	10
2A	95	1	16S	-0.63	10
2A	96	120	16S	-0.83	10
2A	98	125	16S	-0.9	10
2A	99	123	16S	-0.79	10
2A	99	124	16S	-0.85	10
2A	100	13	14S	-0.77	10
2A	101	62	16S	-0.83	10
2A	104	1	14S	-0.73	10
2A	104	123	16S	-0.91	10
2A	107	1	14S	-0.78	10

Water at Broached TSPs (Continued)

SG	Row	Tube	TSP	INCH	%TW
2A	107	101	15S	-0.31	10
2A	107	118	16S	-0.87	10
2A	109	4	14S	-0.7	10
2A	109	42	16S	-0.88	10
2A	110	20	16S	-0.67	10
2A	110	114	16S	-0.73	10
2A	111	29	16S	-0.83	10
2A	112	1	14S	0.28	10
2A	112	113	16S	0.28	10
2A	113	58	16S	-0.96	10
2A	114	6	15S	-0.79	10
2A	115	1	14S	-0.8	10
2A	115	29	16S	-0.77	10
2A	115	91	15S	-0.71	10
2A	116	1	14S	-0.84	10
2A	116	43	16S	-0.84	10
2A	117	56	15S	0.2	10
2A	117	89	15S	-0.8	10
2A	118	1	14S	-0.78	10
2A	118	91	15S	0.16	10
2A	119	82	15S	-0.79	10
2A	119	85	15S	0.19	10
2A	120	71	15S	-0.79	10
2A	120	74	15S	0.22	10
2A	122	47	16S	-0.65	10
2A	123	1	16S	-0.78	10
2A	123	52	16S	-0.75	10
2A	123	89	15S	-0.71	10
2A	124	52	15S	-0.69	10
2A	126	1	16S	-0.85	10
2A	127	49	16S	-0.67	10
2A	128	5	14S	-0.8	10
2A	128	45	16S	-0.77	10
2A	129	7	16S	-0.72	10
2A	131	11	14S	-0.78	10
2A	131	55	15S	0.21	10
2A	133	67	15S	0.21	10
2A	136	9	15S	0.24	10
2A	137	61	15S	-0.87	10
2A	138	10	16S	-0.77	10
2A	139	2	14S	-0.74	10
2A	139	9	15S	0.2	10

Water at Broached TSPs (Continued)

SG	Row	Tube	TSP	INCH	%TW
2A	139	70	16S	0.17	10
2A	140	2	14S	-0.7	10
2A	140	32	16S	-0.75	10
2A	140	38	16S	-0.74	10
2A	141	2	16S	0.14	10
2A	142	18	16S	-0.64	10
2A	145	16	16S	-0.64	10
2A	146	4	16S	-0.68	10
2A	146	12	16S	-0.69	10
2A	146	13	16S	-0.73	10
2A	146	20	16S	-0.63	10
2A	146	28	15S	-0.91	10
2A	146	41	16S	-0.72	10
2A	147	9	16S	-0.88	10
2A	147	20	15S	-0.92	10
2A	148	15	16S	-0.76	10
2A	151	2	14S	-0.7	10
2A	151	4	16S	-0.84	10
1B	69	132	16S	-0.33	24
1B	71	132	16S	-0.34	23
1B	18	1	16S	-0.82	21
1B	63	130	16S	-0.32	19
1B	64	131	16S	-0.36	19
1B	64	131	13S	-0.69	18
1B	19	1	16S	-0.89	17
1B	64	131	14S	-0.71	17
1B	68	131	13S	-0.6	17
1B	94	1	16S	-0.29	17
1B	141	1	16S	-0.78	17
1B	8	1	16S	-0.82	16
1B	75	2	16S	-0.65	16
1B	76	1	11S	-0.68	16
1B	122	105	16S	-0.85	16
1B	149	27	16S	-0.73	16
1B	65	130	16S	0.19	15
1B	76	130	16S	-0.81	15
1B	79	1	11S	0.34	15
1B	123	104	16S	-0.81	15
1B	126	99	16S	-0.76	15
1B	134	1	16S	0.14	15
1B	150	23	16S	0.13	15
1B	150	24	16S	0.13	15

Water at Broached TSPs (Continued)

SG	Row	Tube	TSP	INCH	%TW
1B	151	11	16S	-0.67	15
1B	151	14	16S	-0.84	15
1B	9	1	16S	-0.86	14
1B	62	129	16S	0.19	14
1B	66	131	14S	-0.71	14
1B	68	131	16S	-0.81	14
1B	69	132	14S	-0.66	14
1B	81	1	16S	0.14	14
1B	84	1	11S	0.41	14
1B	88	131	13S	-0.67	14
1B	149	32	11S	-0.61	14
1B	7	1	16S	-0.81	13
1B	34	98	15S	-0.86	13
1B	68	1	16S	-0.75	13
1B	68	131	14S	-0.71	13
1B	73	132	16S	-0.34	13
1B	76	127	16S	-0.88	13
1B	77	1	11S	0.28	13
1B	125	90	16S	0.88	13
1B	148	39	16S	0.2	13
1B	40	112	15S	-0.86	12
1B	56	122	15S	0.24	12
1B	58	1	11S	-0.62	12
1B	66	130	16S	-0.71	12
1B	74	3	16S	-0.83	12
1B	78	1	11S	0.43	12
1B	138	1	16S	0.07	12
1B	151	13	16S	0.15	12
1B	10	4	16S	-0.8	11
1B	15	1	16S	-0.81	11
1B	24	88	15S	0	11
1B	27	1	16S	-0.75	11
1B	57	125	15S	-0.85	11
1B	65	130	13S	0.32	11
1B	76	1	16S	0.15	11
1B	83	132	13S	-0.74	11
1B	2	24	01S	-0.37	10
1B	25	7	16S	-0.81	10
1B	47	1	16S	-0.85	10
1B	62	1	16S	-0.82	10
1B	75	132	14S	-0.7	10

Water at Broached TSPs (Continued)

SG	Row	Tube	TSP	INCH	%TW
1B	82	1	11S	0.39	10
1B	94	129	14S	0.24	10

Wear at Drilled TSPs

SG	Row	Tube	TSP	Max Depth [%TW]	Axial Extent [in]	Circumferential Extent [°]	PDA [%]
2A	142	1	15S	17	0.21	63	3
1B	48	123	15S	26	0.21	62	4.5
1B	38	115	15S	21	0.21	71	4.1
1B	37	114	15S	18	0.21	67	3.3

Section 5

Number of Tubes Plugged During the Inspection Outage for Each Degradation Mechanism (TS 5.6.6.e)

Degradation Mechanism	SG 2A	SG 1B
Wear at broached TSP	10	0

Section 6

The Number and Percentage of Tubes Plugged to date, and the Effective Plugging Percentage in Each SG (TS 5.6.6.f)

	SG 2A	SG 1B	Total
Total Plugged	11	0	11
Percentage Plugged	0.070%	0	0.035%

Section 7

The Results of Condition Monitoring, Including the Results of Tube Pulls and In-Situ Testing (TS 5.6.6.g)

No degradation was identified that failed to meet condition monitoring criteria. All steam generator performance criteria were met analytically during Cycle 19. As such, in-situ pressure testing was not required, and none was performed. No tube pulls were planned, and none were performed.

Section 8

Replacement SG Tubing Structural Limit Associated with the Most Limiting LBLOCA for the Replacement SG

FLAW TYPE	Allowable Flaw Size
Volumetric Degradation	
Uniform 360° thinning over a given TSP length	29.3%TW
135° circumferential extent over a tapered TSP length	No limiting LBLOCA loading
Axial Cracking	
All cases	No limiting LBLOCA loading
Circumferential Cracking	
Uniform circumferential, with crack plane rotation	6.0% PDA
Part circumferential, with crack plane rotation	6.1% PDA
No crack plane rotation	30.6% PDA