NEXTera ENERGY POINT BEACH

September 20, 2016

NRC 2016-0044
TS 5.6.8

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

Point Beach Nuclear Plant, Unit 1
Docket 50-266
Renewed License No. DPR-24

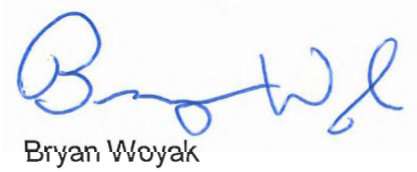
Spring 2016 Unit 1 (U1R36)
Steam Generator Tube Inspection Report

Pursuant to the requirements of Point Beach Nuclear Plant (PBNP) Technical Specification, TS 5.6.8 "Steam Generator Tube Inspection Report," NextEra Energy, LLC is submitting the 180-day Steam Generator Tube Inspection Report. The enclosure to this letter provides the results of the spring 2016, Unit 1 (U1R36) steam generator tube inspections.

If you have questions or require additional information, please contact Mr. Edward Korkowski at 561/904-5779.

Sincerely,

NextEra Energy Point Beach, LLC



Bryan Woyak
Licensing Manager

Enclosure

cc: Administrator, Region III, USNRC
Project Manager, Point Beach Nuclear Plant, USNRC
Resident Inspector, Point Beach Nuclear Plant, USNRC
PSCW

ENCLOSURE 1

NEXTERA ENERGY POINT BEACH, LLC
POINT BEACH NUCLEAR PLANT, UNIT 1

SPRING 2016 UNIT 1 (U1R36)
STEAM GENERATOR TUBE INSPECTION REPORT

18 pages follow

Enclosure 1

U1R36 Steam Generator Tube Inspection Report

Background

This report is provided in accordance with Point Beach Technical Specification Section 5.6.8, "Steam Generator Tube Inspection Report" for the inspection conducted in March, 2016 during refueling outage U1R36. The U1R36 inspection was the first inspection in the 4th Inspection Period (72 EFPM). The inspections performed at U1R36 satisfied the inspection requirements defined in Point Beach Technical Specification Section 5.5.8.d.2.i.

Point Beach Unit 1 contains two (2) Westinghouse Model 44F steam generators (SGs), which were installed in 1983 to replace the original Unit 1 SGs. The replacement 44F SGs are tubed with thermally treated Inconel 600 (I600TT) tubing. At the completion of Cycle 36 (U1R36), the Unit 1 SGs had accumulated 27.1 Effective Full Power Years (EFPY) of operation. The hot leg operating temperature (T-Hot) of Point Beach Unit 1 is currently ~611 degrees F.

Following the U1R36 refueling outage, Point Beach Unit 1 initially entered HOT SHUTDOWN (Mode 4) on April 2, 2016, which marked the beginning of Cycle 37 for Unit 1. Pursuant to Point Beach Technical Specification 5.6.8, this Steam Generator Tube Inspection Report is required to be submitted to the NRC within 180 days after initial entry into Mode 4.

Implementation of TSTF-510 (Reference 1) was approved by License Amendments 254 and 258 (Reference 2) on Nov. 25, 2015, and incorporated into the Point Beach technical specifications to make changes to the sections pertaining to SG tube integrity, the SG program (inspection frequency), and the SG Tube Inspection Report. When TSTF-510 was implemented at Point Beach, the inspection period durations for Unit 1 were adjusted (per the approved license amendments) as follows:

- 2nd inspection period (90 EFPM) was adjusted to 96 EFPM
- 3rd subsequent inspection periods (60 EFPM) were adjusted to 72 EFPM.

Upon implementation of TSTF-510, the U1R36 inspection shifted (in periodicity position) from the last inspection in the 4th period (old 60-EFPM period) to the first inspection in the 4th period (new 72-EFPM period).

The examination performed during U1R36 met the requirements of the following:

- Technical Specification 5.5.8 "Steam Generator (SG) Program"
- Steam Generator Management Program: Pressurized Water Reactor Steam Generator Examination Guidelines: Revision 7. EPRI, Palo Alto, CA. 2007 TR-1013706.
- EPRI Report 1019038, Steam Generator Management Program (SGMP): Steam Generator Integrity Assessment Guidelines, Revision 3, November, 2009
- The U1R36 inspection scope and plan were based on the Degradation Assessment that was prepared prior to the refueling outage.

Enclosure 1

U1R36 Steam Generator Tube Inspection Report

Steam Generator Tube Inspection Report

Note: The previous SG Tube Inspection Report from U1R34 is available under NRC Adams Accession # ML13268A108 (Reference 3). Subsequent NRC RAI's (and Nextera Responses) for the U1R34 report are available under NRC Adams Accession # ML14062A047 (Reference 4).

Following is the Steam Generator Tube Inspection Report for U1R36:

Each applicable reporting requirement of TS 5.6.8 is addressed below in items "a" through "g" for the U1R36 inspection in 2016.

a. The Scope of Inspections Performed on each SG

(Both SGs were examined during U1R36).

The inspection program for the Unit 1 Steam Generators consisted of:

Bobbin Probe

- 100% full length in rows 3 and higher; Row 1 & 2 examinations limited to the hot leg (HL) and cold leg (CL) straight sections.

+Point™ Rotating Probe

- 50% of tight radius u-bends in Row 1 and Row 2
- 50% of HL freespan Dings/Dents >5.0 volts between TSH and 06H +1.00".
- 50% Dings/Dents >5.0 volts in the u-bends.
- 50% Dings/Dents >5.0 volts at HL tube supports.
- 50% of the hot leg tubesheet to the extent of TSH +3.00 to TEH. (This includes minimum 50% sample of BLG & OXP indications within the Tubesheet).
- 100% of potential high stress tubes [see Note 1] at hot leg tubesheet locations to the extent of TSH +3.00 to TEH.
- All H/L supports (including FDB) and top C/L TSPs in 25% sample of potential high stress tubes [see Note 1].
- All Hot Leg and Cold Leg Periphery Expansion Transitions - +3"/-3" from top of tubesheet. "Periphery Tubes" are defined as the three outer-most peripheral tubes exposed to the annulus, and all open row 1 and 2 tubes in columns 1-92.
- All tubes adjacent to previously reported foreign objects from FOSAR.
- All tubes adjacent to "PLP" indications reported during U1R34 +Point™ examination.
- Diagnostic rotating probe examinations (Special interest, SI) were completed as required based on the results of the bobbin coil.

Note 1: The Point Beach tubes identified as "Potential High Stress Tubes" are commonly referred to in the industry as "minus 2 sigma tubes" or, "Seabrook Signature Tubes".

Enclosure 1

U1R36 Steam Generator Tube Inspection Report

Plug Visual Inspection

100% of the installed tube plugs in the Unit 1 SGs were visually inspected during U1R36. This included:

- Five (5) H/L plugs and five (5) C/L plugs in SG A
- Eight (8) H/L plugs and eight (8) C/L plugs in SG B

All of the plugs were confirmed to be present in their correct locations and were free from degradation and visible signs of leakage based on the visual examination.

Primary Side Inspections to address Westinghouse NSAL 12-01

Westinghouse Letter NSAL 12-01 (Reference 6) recommended a visual inspection of the channel heads near the bowl drain line to determine if degradation of the cladding and potential degradation of the channel head base material had occurred. The visual examinations were performed per the guidance provided in the NSAL letter, and no anomalies were identified in the channel head bowls (H/L and C/L) of either SG.

During U1R30, rust coloration was reported inside the channel head near the primary manway; the rust coloration was reported again during U1R34. A visual inspection of the same area was performed during U1R36 and no such rust coloration was observed. The issue of the rust coloration was previously discussed in Reference 4.

Secondary Side Cleaning and Inspections

The following secondary side work was performed in both steam generators:

- Sludge Lancing at the top-of-tubesheet
- FOSAR (Foreign Object Search and Retrieval)
- Upper Steam Drum internals visual inspection (in one selected SG, SG B)
- Upper Tube Bundle visual inspection through top inspection port (in one selected SG, SGB).

The sludge lancing process resulted in the removal of the following amounts of sludge:

- 12 lbs of sludge from SG A,
- 13 lbs of sludge from SG B.

Post sludge lancing FOSAR (at the Top of Tubesheet) was performed in both steam generators. Twenty-seven (27) newly-identified foreign objects in SG A, and twenty-five (25) newly-identified foreign objects in SG B were reported during FOSAR. Most of these foreign objects were sludge rocks and small-grade wire bristles up to ~0.020" in diameter.

In SG A, six (6) of the twenty-seven (27) identified foreign objects were retrieved. In SG B, three (3) of the twenty-five (25) identified foreign objects were retrieved. There was no foreign object wear reported by visual or Eddy Current inspections.

An engineering evaluation was performed for all of the parts that were not removed from the SGs during U1R36. The engineering evaluation determined that the foreign objects left in the SGs will not pose a threat to tube integrity over the next two cycles of operation, and will likely be removed from the SG during normal SG operation. There were no fixed foreign objects being tracked prior to the U1R36 inspection.

The locations of the non-retrieved foreign objects from U1R36 will be visually examined the next time that FOSAR is performed. In addition to the FOSAR, primary side eddy current inspections using the rotating +Point™ coil were performed on all periphery tubes at the top-of-tubesheet locations (in the hot leg and cold leg of both SGs). No foreign object wear was reported during those periphery tube +Point™ coil examinations.

Upper Steam Drum Inspection

Upper Steam Drum Inspections were also performed in one SG (SG B). The upper internal components inspected included primary separators, secondary separator perforated plates, drain pipes, feedring J-Nozzles and general areas.

The general area of the steam drum was visually inspected. No anomalies were observed during the inspection. All accessible Upper Steam Drum areas which were part of the Moisture Carryover modification (mid deck extension and brackets, flow diverters, hatch and bolts and secondary moisture separators) were inspected with no anomalies reported. All thirty six (36) J-nozzles and the feedring were visually inspected. All J-nozzles were inspected; no issues were identified. All other areas inspected appeared normal. The one hundred and twelve (112) Primary Moisture Separators were visually inspected. All primary moisture separators appeared to be covered in a light coating of magnetite. No anomalies were observed during inspection. Informational UT thickness measurements were made on the feedring and eight (8) primary moisture separators of SG B for trending. There were no abnormal thickness values or negative trends from the baseline measurements taken in U1R33.

Upper Tube Bundle Inspection

Inner tube bundle inspections were performed above the 6th (uppermost) broached TSP location in SG B to determine the general secondary side conditions in the upper tube bundle. In the cold leg, an even coating of sludge covering the support plate, there was also one foreign object (small wire bristle) that was retrieved (no wear was detected in association with the retrieved piece of wire). In the hot leg there was more of a buildup of sludge in-bundle rising up the sides of the tubes. The quatrefoils were open but with some build-up of sludge.

b. Degradation Mechanisms Found

There were no indications of corrosion-related tube degradation reported during the U1R36 inspections.

The U1R36 examination results for Point Beach Unit 1 identified mechanical wear at the following locations:

Enclosure 1

U1R36 Steam Generator Tube Inspection Report

- Mechanical Wear Indications at Anti-vibration Bar (AVB)
- Mechanical Wear at Broached Tube Support Plates

Mechanical Wear Indications at Anti-vibration Bar (AVB)

Table 1 lists the AVB wear indications identified in SG A during U1R36, with each indication's historical depth measurements. In SG A, there were one hundred-four (104) indications in fifty-seven (57) tubes with indications of wear at the Anti-Vibration Bars. All one hundred-four (104) AVB wear indications were sized with the bobbin coil.

Table 2 lists the AVB wear indications identified in SG B during U1R36, with each indication's historical depth measurements. In SG B, there were seventy-six (76) indications in fifty-two (52) tubes with indications of wear at the Anti-Vibration Bars. All seventy-six (76) AVB wear indications were sized with the bobbin coil.

The deepest wear indication in SG A was 34% through-wall (TW). The deepest wear indication SG B was 22%TW. None of these indications required plugging per Technical Specifications and all remained in service.

Wear at Broached Tube Support Plates

Table 3 lists the TSP wear indications (in both SGs) identified in U1R36, with each indication's historical depth measurements. There were ten (10) wear indications reported at broached tube support plates; six (6) in SG A and four (4) in SG B.

The results of the sizing showed land contact wear at each of the broached support locations with wear depths ranging from 8% to 16% through-wall. Table 3 shows all TSP wear indications (in both SGs) along with historical comparisons.

Mechanical Wear Indications at Foreign Object Locations and Top-of-Tubesheet Locations

During the U1R33 inspection in 2011, mechanical wear at one foreign object location, and mechanical wear at several top-of-tubesheet locations was reported. (See Table 5-5 and 5-6 of Reference 5). All of those signals that were previously reported as mechanical wear in U1R33 were deemed to be non-reportable during U1R34. Those signals were reclassified as "INR" (Indication Not Reportable) during U1R34 (See Tables 5-5 and 5-6 in Reference 3). The signals are attributed to interaction with sludge lance equipment used in the past. During U1R36, there were no mechanical wear indications reported at foreign object or top-of-tubesheet locations. Therefore, there are no longer any instances of mechanical wear at foreign object or top-of-tubesheet locations in the Unit 1 SGs.

Possible Loose Parts

During U1R36, no tube wear associated with foreign objects was reported. As in the past, PLP signals reported during the Eddy Current examination are reconciled with secondary side inspection activities and dispositioned accordingly. No tube wear was associated with any of the PLPs reported during the U1R36 Eddy Current examination. Similarly, no wear was associated with any of the foreign objects reported during the secondary side visual examination.

Any foreign objects remaining in the SGs were evaluated and all were found acceptable to remain in the SGs until the next Eddy Current and FOSAR inspections scheduled for U1R38.

c. Nondestructive examination techniques utilized for each degradation mechanism

The following is the list of EPRI technique sheets (ETSSs) used for detection for the specific types of degradation listed below.

U1R36 Detection Techniques

AVB Wear	96041.1 (Bobbin Coil)
TSP/FDB Wear	96004.1 (Bobbin Coil)
Loose Part (Foreign Object) Wear	27091.2 (Bobbin Coil)
Pitting in Sludge Pile	96005.2 (Bobbin Coil)
Ding/Dent ODSCC	24013.1; (Bobbin Coil)
Axial ODSCC at Flow Baffle	I28411 (Bobbin Coil)
Axial ODSCC at TSP and free span	I28413 (Bobbin Coil)
Transition Zone ODSCC and sludge pile	I28424; 21410.1 (+Point™ Coil)
Axial ODSCC at Flow Baffle	I28424 (+Point™ Coil)
Axial ODSCC at TSP and free span	I28425 (+Point™ Coil)
Low Row U-bend ODSCC	10411.1; 21410.1 (+Point™ Coil)
Ding/Dent ODSCC	22841.3; 22842.3 (+Point™ Coil)
Low Row U-bend Axial PWSCC	96511.2; 99997.1 (+Point™ Coil)
PWSCC in Tubesheet and Tube Ends	20511.1; 20510.1 (+Point™ Coil)
Transition Zone PWSCC	20511.1; 20510.1 (+Point™ Coil)

Only two types of degradation were detected during U1R36; wear at AVBs and wear at broached TSPs. The following list provides the EPRI technique sheets (ETSSs) used for sizing those specific types of degradation.

U1R36 Sizing Techniques

AVB Wear	96041.1 (Bobbin Coil)
Broached TSP Wear	96910.1 (+Point™ Coil)

d. Location, orientation (if linear), and measured sizes (if available) of service induced indications,

Table 1 lists the AVB wear indications in SG A identified in U1R36, with each indication's historical depth measurements.

Table 2 lists the AVB wear indications in SG B identified in U1R36, with each indication's historical depth measurements.

Table 3 lists the broached TSP wear indications identified in U1R36 (in both SGs), with each indication's historical depth measurements.

e. Number of tubes plugged during the inspection outage for each degradation mechanism,

No tubes were plugged during U1R36.

Total Tubes Plugged and Plugging Percentage

	SG A	SG B
Total Tubes Plugged	5 of 3214	8 of 3214
Plugging Percentage	0.156%	0.249%

f. The number and percentage of tubes plugged to date, and the effective plugging percentage in each steam generator,

No tube repair methods (i.e. sleeving) are approved for Point Beach Unit 1 that would have an effect on the effective plugging percentages. Therefore, the applicable effective plugging percentage is synonymous with the % Plugged in the table shown above in item "e".

g. The results of condition monitoring, including the results of tube pulls and in-situ testing.

All tubes satisfied the structural integrity and accident-induced leakage performance criteria based on the CM evaluation performed at the U1R36 inspection. No tubes required in-situ pressure testing for either tube burst or leakage. Therefore, all tubes met the structural and leakage integrity requirements of the Point Beach Technical Specifications. No tube pulls were required. The following section provides more detailed discussion of the conditioning monitoring performed at U1R36.

Enclosure 1

U1R36 Steam Generator Tube Inspection Report

AVB Wear

The listing for AVB wear reported during U1R36 is provided in Tables 1 and 2. The actual number of indications detected at U1R36 is 104 in SG A and 76 in SG B. The deepest indication was in SG A and measured 34% TW which is well below the condition monitoring limit of 55% TW, satisfying the condition monitoring requirements.

Wear at Tube Support Plates

The listing for TSP wear reported during U1R36 is provided in Table 3. The actual number of TSP wear indications detected at U1R36 is six (6) in SG A and four (4) in SG B. The deepest indication was in SG A and measured 16% TW, which is well below the condition monitoring limit of 44% TW, satisfying the condition monitoring requirements.

Observed Leak Rates

The primary-to-secondary leak rate from both steam generators (combined) continues to be in the range of 0.0 to 0.4 gallons per day (gpd). The Unit 1 steam generator primary-to-secondary operational leakage remains at a constant low level and was evident prior to the spring 1991 outage. This normal operation leakage is very small compared to the operating leakage limit of 150 gpd per SG. The current leak rate has remained essentially the same for many cycles and is expected to remain at these low levels. Point Beach will continue to monitor the leakage with the primary-to-secondary operational leak monitoring procedure.

This leakage has been previously reported to the NRC in Reference 3 (U1R34 SG Tube Inspection Report), and discussed further in Reference 4 (RAI responses to U1R34 SG Tube Inspection Report).

Table 1

AVB Wear History - SG A

Row	Col	Loc	2016 %TW	2013 %TW	2011 %TW	2008 %TW	2007 %TW	2004 %TW	2001 %TW	1998 %TW	1995 %TW
11	45	AV1	13	10	-	-	-	-	-	-	-
11	53	AV4	8	9	9	7	4	-	-	-	-
15	87	AV2	INR	INR	INR	5	-	-	-	-	-
		AV3	INR	INR	INR	5	-	-	-	-	-
19	54	AV1	9	10	10	7	8	-	-	-	-
		AV2	19	18	17	12	17	12	14	13	7
		AV3	10	10	11	8	10	-	-	-	-
		AV4	15	17	17	13	17	12	16	12	13
19	61	AV1	16	16	17	12	13	12	18	10	12
		AV2	20	18	19	14	16	15	23	13	14
		AV4	9	9	9	6	5	6	8	-	-
22	8	AV3	5	5	4	3	3	-	-	-	-
		AV4	4	4	5	3	-	-	-	-	-
24	63	AV1	11	14	12	8	-	14	-	INR	9
		AV2	18	18	12	-	-	-	-	-	-
		AV3	18	20	16	-	-	-	-	-	-
		AV4	8	9	-	-	-	-	-	-	-
24	85	AV2	8	8	7	5	5	-	-	-	-
26	83	AV3	8	8	8	6	-	-	-	-	-
26	84	AV1	INR	5	6	4	-	-	-	-	-
		AV2	INR	6	5	3	-	-	-	-	-
27	71	AV2	11	11	12	8	10	6	11	5	4
		AV3	16	17	18	14	15	10	12	3	2
		AV4	8	9	11	8	7	5	6	0	0
29	41	AV2	11	10	-	-	-	-	-	-	-
29	81	AV2	6	6	6	4	7	-	-	-	-
31	35	AV4	12	9	-	-	-	-	-	-	-
31	36	AV4	8	-	-	-	-	-	-	-	-
31	63	AV2	14	17	16	13	18	20	14	9	12
		AV3	10	11	10	7	11	10	5	5	2
31	79	AV3	4	5	7	5	6	-	-	-	-
32	14	AV2	5	6	6	4	-	-	-	-	-
		AV3	9	9	8	7	7	5	3	14	11
		AV4	8	8	9	5	7	-	-	-	-

Table 1

AVB Wear History - SG A

Row	Col	Loc	2016 %TW	2013 %TW	2011 %TW	2008 %TW	2007 %TW	2004 %TW	2001 %TW	1998 %TW	1995 %TW
32	68	AV1	10	7	12	10	-	9	-	-	-
		AV2	9	10	10	8	-	9	-	-	-
32	71	AV2	15	18	18	14	15	11	9	10	6
		AV3	11	12	12	8	11	-	-	-	-
32	78	AV3	5	5	6	2	-	-	-	-	-
32	79	AV1	5	6	6	4	9	-	-	-	-
33	18	AV3	21	24	21	19	18	25	21	-	-
		AV4	15	15	15	10	11	16	13	-	-
33	36	AV3	9	-	-	-	-	-	-	-	-
		AV4	10	12	-	-	-	-	-	-	-
33	37	AV3	8	7	7	5	-	-	-	-	-
		AV4	15	13	12	10	14	9	13	7	8
33	48	AV3	10	11	9	8	9	13	9	-	-
		AV4	8	7	7	4	-	-	-	-	-
33	57	AV1	13	12	10	4	5	-	-	-	-
		AV2	15	12	-	-	-	-	-	-	-
33	66	AV1	18	19	18	16	14	20	14	9	8
		AV2	14	15	15	13	10	13	11	9	4
		AV3	5	6	5	5	4	5	5	4	4
33	71	AV2	18	20	20	16	16	13	17	5	6
		AV3	15	14	15	10	14	6	10	0	0
34	33	AV1	14	13	13	8	14	10	10	5	11
		AV2	21	17	11	6	11	7	7	7	10
34	65	AV3	12	12	13	9	5	9	6	1	-
		AV4	18	20	17	14	11	15	12	6	7
34	69	AV1	8	9	11	6	8	3	7	1	0
		AV2	12	14	16	11	16	11	14	6	9
35	18	AV2	10	10	10	9	11	10	6	INR	9
		AV3	10	-	-	-	-	-	-	-	-
35	43	AV3	10	10	10	9	-	8	-	-	-
		AV4	17	13	13	11	-	9	-	-	-
35	56	AV1	23	23	26	21	18	14	15	5	6
		AV2	34	34	37	33	27	27	27	9	13
37	20	AV4	8	8	-	-	-	-	-	-	-

Table 1

AVB Wear History - SG A

Row	Col	Loc	2016 %TW	2013 %TW	2011 %TW	2008 %TW	2007 %TW	2004 %TW	2001 %TW	1998 %TW	1995 %TW
38	22	AV2	8	9	8	7	7	-	-	-	-
		AV3	11	10	11	9	10	12	6	10	8
		AV4	7	8	8	6	6	-	-	-	-
38	43	AV1	32	28	27	27	24	23	19	12	11
		AV2-	30	26	22	19	17	16	-	-	-
		AV2+	27	23	25	24	22	23	19	12	8
38	54	AV3	21	22	24	20	26	25	18	14	15
		AV4	10	11	11	8	9	-	-	-	-
39	68	AV2	6	8	7	5	-	-	-	-	-
		AV3	6	7	6	5	-	-	-	-	-
		AV4	4	5	5	5	9	9	8	9	6
39	69	AV3	10	11	11	7	-	-	-	-	-
40	25	AV1	7	7	6	6	-	-	-	-	-
		AV2	9	9	8	7	9	6	5	9	6
		AV3	8	9	9	7	-	-	-	-	-
40	27	AV3	8	8	8	6	8	5	4	6	5
40	42	AV1	10	11	10	7	14	12	13	-	23
40	44	AV3	14	14	12	9	11	13	10	7	5
40	47	AV3	15	14	14	10	15	10	13	10	12
40	66	AV1	7	9	9	-	-	-	-	-	-
42	61	AV1	8	-	-	-	-	-	-	-	-
		AV4	7	8	9	6	5	-	-	-	-
43	52	AV4	7	9	9	-	-	-	-	-	-
43	56	AV4	6	7	7	-	-	-	-	-	-
44	54	AV1	5	7	-	-	-	-	-	-	-
		AV4	5	7	-	-	-	-	-	-	-
45	41	AV1	8	9	9	7	10	6	6	7	6
		AV4	9	11	10	8	8	7	6	7	6
45	42	AV1	11	10	10	10	14	-	-	-	-
45	43	AV1	7	8	8	7	18	13	12	15	11
		AV4	10	11	11	9	9	8	8	-	-
45	45	AV4	9	8	-	-	-	-	-	-	-
45	49	AV1	5	6	4	4	15	19	14	13	18
		AV2	4	6	5	4	-	-	-	-	-

Table 1

AVB Wear History - SG A

Row	Col	Loc	2016 %TW	2013 %TW	2011 %TW	2008 %TW	2007 %TW	2004 %TW	2001 %TW	1998 %TW	1995 %TW
		AV4	7	10	9	7	-	-	-	-	-
45	50	AV4	8	10	9	6	4	-	-	-	-
45	51	AV4	6	7	6	6	-	-	-	-	-
45	52	AV2	7	10	9	7	-	-	-	-	-
		AV3	7	-	-	-	-	-	-	-	-
		AV4	6	-	-	-	-	-	-	-	-

TW = Through-wall, INR = Indication Not Reportable

Table 2

AVB Wear History - SG B

Row	Col	Loc	2016 %TW	2013 %TW	2011 %TW	2008 %TW	2007 %TW	2004 %TW	2001 %TW	1998 %TW	1995 %TW
14	15	AV3	5	7	8	8	-	-	-	-	-
15	87	AV3	10	11	-	-	-	-	-	-	-
16	47	AV2	9	8	9	8	5	-	-	-	-
16	70	AV2	INR	INR	8	-	-	-	-	-	-
16	73	AV2	INR	INR	9	7	-	-	-	-	-
16	77	AV3	INR	INR	INR	6	-	-	-	-	-
17	70	AV3	8	9	8	-	-	-	-	-	-
17	79	AV2	10	10	9	8	9	-	-	-	-
18	77	AV3	INR	INR	7	8	-	-	-	-	-
19	36	AV3	8	8	9	8	8	9	9	6	6
21	79	AV2	6	8	9	-	-	-	-	-	-
		AV3	5	7	7	-	-	-	-	-	-
22	58	AV1	10	10	12	9	10	9	8	8	5
		AV2	21	21	21	19	21	21	19	16	16
		AV3	19	18	19	17	19	19	16	13	14
		AV4	16	15	16	13	15	14	12	11	9
23	33	AV1	11	12	9	8	12	11	6	8	8
		AV2	16	18	16	14	16	15	13	16	11
		AV3	22	25	25	24	26	25	17	19	18
		AV4	5	6	5	4	6	-	-	-	-
23	79	AV2	5	7	9	-	-	-	-	-	-
23	86	AV2	8	8	7	7	-	-	-	-	-
		AV3	9	9	9	10	-	-	-	-	-
24	13	AV2	6	8	8	7	4	-	-	-	-
25	23	AV3	4	6	8	6	-	-	-	-	-
26	28	AV2	9	8	10	-	-	-	-	-	-
27	82	AV2	8	8	8	-	-	-	-	-	-
28	13	AV2	5	7	9	7	-	-	-	-	-
28	41	AV4	7	8	8	7	-	6	-	-	-
28	79	AV2	7	9	10	8	-	6	-	-	-
29	13	AV2	4	6	8	-	-	-	-	-	-
29	40	AV2	6	8	9	8	-	-	-	-	-
29	55	AV1	14	14	13	12	-	11	-	-	-
		AV3	6	6	5	4	-	8	-	-	-

Table 2

AVB Wear History - SG B

Row	Col	Loc	2016 %TW	2013 %TW	2011 %TW	2008 %TW	2007 %TW	2004 %TW	2001 %TW	1998 %TW	1995 %TW
31	25	AV4	6	6	9	6	5	-	-	-	-
32	14	AV2	8	7	9	7	3	-	-	-	-
32	32	AV3	11	12	14	10	13	13	12	8	7
		AV4	7	8	10	7	7	6	6	-	-
32	44	AV3	4	6	5	5	9	8	7	5	4
32	46	AV1	3	8	8	6	-	-	-	-	-
		AV2	15	16	16	14	17	15	11	11	8
		AV3	17	18	19	18	21	18	15	17	12
		AV4	12	13	14	12	10	-	-	-	-
32	49	AV1	16	18	18	17	20	18	14	13	13
		AV2	14	16	16	13	16	15	11	10	10
32	70	AV1	15	15	14	12	13	11	14	4	5
		AV2	18	17	20	16	19	17	17	14	12
33	16	AV1	5	4	6	4	-	4	-	-	-
		AV3	9	-	-	-	-	-	-	-	-
33	17	AV2	10	9	11	8	-	4	-	-	-
33	71	AV1	17	19	19	18	20	19	17	13	10
		AV2	9	11	11	9	10	10	6	-	-
		AV3	3	7	8	4	-	-	-	-	-
34	17	AV2	9	9	11	8	-	5	-	-	-
34	18	AV2	8	7	8	5	-	5	-	-	-
34	75	AV2	7	11	10	9	6	-	-	-	-
35	18	AV2	8	7	9	6	-	3	-	-	-
35	24	AV4	8	10	-	-	-	-	-	-	-
36	73	AV2	12	-	-	-	-	-	-	-	-
36	74	AV1	7	8	8	5	7	6	7	7	6
		AV4	8	8	7	6	-	-	-	-	-
37	73	AV3	11	11	10	9	8	-	-	-	-
38	22	AV1	9	9	10	7	6	-	-	-	-
		AV2	8	10	-	-	-	-	-	-	-
39	69	AV2	6	9	9	7	-	-	-	-	-
		AV3	6	8	9	6	-	-	-	-	-
41	29	AV1	6	8	7	5	-	1	-	-	-
		AV4	7	8	8	6	-	1	-	-	-

Table 2

AVB Wear History - SG B

Row	Col	Loc	2016 %TW	2013 %TW	2011 %TW	2008 %TW	2007 %TW	2004 %TW	2001 %TW	1998 %TW	1995 %TW
42	31	AV4	11	10	10	7	-	6	-	-	-
42	32	AV1	13	12	13	11	-	-	-	-	-
42	33	AV1	6	7	9	7	-	6	-	-	-
42	58	AV1	8	11	-	-	-	-	-	-	-
42	59	AV1	9	9	10	-	-	-	-	-	-
43	59	AV4	7	9	11	-	-	-	-	-	-
44	50	AV3	7	10	8	9	-	-	-	-	-
44	54	AV1	8	9	9	9	8	8	8	-	-
		AV3	5	9	9	6	-	-	-	-	-
45	44	AV1	7	7	8	6	16	14	14	12	13
		AV2	6	-	-	-	-	-	-	-	-
45	46	AV1	9	-	-	-	-	-	-	-	-

TW = Through-wall, INR = Indication Not Reportable

Table 3

Wear at Tube Support Plates

SG	ROW	COL	2016 % TW	2013 % TW	2011 % TW	2008 % TW	2007 % TW	2005 % TW	2004 % TW	Location
A	18	87	12	13	13	N/R	N/R	N/R	N/R	02C
A	21	85	15	15	15	13	N/I	12	10	02C
A	37	73	8	8	N/R	N/R	N/R	N/R	N/R	01C
A	39	24	14	13	15	13	N/I	11	12	03C
A	39	67	11	11	12	10	N/I	7	N/R	02C
A	41	65	16	15	16	14	N/I	16	18	02C
B	5	45	11	10	11	N/R	N/R	N/R	N/R	05C
B	34	18	15	15	13	12	N/R	N/I	N/R	01H
B	38	22	12	10	N/R	N/R	N/R	N/R	N/R	04C
B	39	69	13	12	13	N/R	N/R	N/R	N/R	01C

N/I = not inspected, N/R = not reported, TW = through-wall

Enclosure 1

U1R36 Steam Generator Tube Inspection Report

Appendix A
Acronyms

AVB	Anti Vibration Bar
ECT	Eddy Current Testing
EFPM	Effective Full Power Months
EPRI	Electric Power Research Institute
ETSS	Examination Technique
FDB	Flow Distribution Baffle
FOSAR	Foriegn Object Search and Retrieval
DSI	Distorted Support Indication
GPD(gpd)	Gallons per Day
HL	Hot Leg
INR	Indication Not Reportable
NDD	No Degradation Detectable
NEI	Nuclear Energy Institute
OD	Outside Diameter
ODSCC	Outside Diameter Stress Corrosion Cracking
PCT	Percent
PLP	Possible Loose Part
PWSCC	Primary Water Stress Corrosion Cracking
RAI	Request for Additional Information
SG	Steam Generator
TSP	Tube Support Plate
TTS	Top of Tube Sheet
TWD	Though Wall Depth

Enclosure 1

U1R36 Steam Generator Tube Inspection Report

Appendix B
References

References

1) NRC Document TSTF-510, Rev 2, "Revision to Steam Generator Program Inspection Frequencies and Tube Sample Selection".

2) NRC License Amendment 254 and 258, Letter dated November 25, 2015 "Point Beach Nuclear Plant, Units 1 and 2 – Issuance of Amendments for the Steam Generator Technical Specifications, to Reflect Adoption of TSTF-510 RE: (TAC NOS. MF6043 and MF6044)." (ADAMS Accession No. ML15293A457).

3) "Spring 2013 Unit 1 (U1R34) Steam Generator Tube Inspection Report" (NRC Adams Accession # ML13268A108). Document Date 9/24/2013.

4) "Response to Request for Additional Information Spring 2013 Unit 1 (U1R34) Steam Generator Tube Inspection Report". (NRC Adams Accession # ML14062A047). Document Date 3/3/2014.

5) "Fall 2011 Unit 1 (U133) Steam Generator Tube Inspection Report" (NRC Adams Accession # ML12150A287). Document Date 5/29/2012.

6) Westinghouse Nuclear Safety Advisory Letter (NSAL) 12-01, Steam Generator Channel Head Degradation, 01/05/2012.