



**FPL Energy**

**Point Beach Nuclear Plant**

FPL Energy Point Beach, LLC, 6610 Nuclear Road, Two Rivers, WI 54241

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TS 5.6.8

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

Point Beach Nuclear Plant, Unit 2  
Docket 50-301  
Renewed License No. DPR-27

Response to Request for Additional Information  
Spring 2008 Unit 2 (U2R29) Steam Generator Tube Inspection Report

- Reference: (1) FPL Energy Point Beach, LLC to NRC Letter dated September 16, 2008, Spring 2008 Unit 2 (U2R29) Steam Generator Tube Inspection Report, (ML082590073)
- (2) NRC to FPL Energy Point Beach, LLC Letter dated February 3, 2009, Point Beach Nuclear Plant. Units 1 and 2 – Request For Additional Information Related to Unit 2 Steam Generator Tube Inspection Report (TAC NO. MD9689), (ML090230617)

FPL Energy Point Beach, LLC submitted the Spring 2008 Unit 2 Steam Generator Tube Inspection Report via Reference (1), documenting the scope and results of the inspection per prescribed Technical Specification reporting requirements.

On January 7, 2009, a teleconference was held between NRC staff and FPL Energy Point Beach personnel discussing this report and additional information requested by the Commission in order to complete its review. Reference (2) is the Request for Additional Information (RAI) that transmitted the staff's questions.

Enclosure 1 provides the FPL Energy Point Beach response to Reference (2).

This letter contains no new commitments and no revisions to existing commitments.

Very truly yours,

FPL Energy Point Beach, LLC

A handwritten signature in black ink, appearing to read "James Costedio". The signature is fluid and cursive, with the first name "James" and last name "Costedio" clearly distinguishable.

James Costedio  
Licensing Manager  
Point Beach Nuclear Plant

Enclosure

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

## ENCLOSURE 1

### FPL ENERGY POINT BEACH, LLC POINT BEACH NUCLEAR PLANT, UNIT 2

#### RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION SPRING 2008 UNIT 2 (U2R29) STEAM GENERATOR TUBE INSPECTION REPORT

The following information is provided by FPL Energy Point Beach, LLC in response to the NRC staff's request for additional information dated February 3, 2009, regarding the Spring 2008 Unit 2 (U2R29) Steam Generator Tube Inspection report.

##### **Questions 1:**

*For each refueling outage or steam generator (SG) tube inspection since installation of the SGs, please provide the cumulative effective full power months that the SGs have operated.*

##### **Response:**

Outage	U2R22 (install)	U2R23 (first ISI)	U2R24 (begin 144 EFPM)	U2R25	U2R26	U2R27	U2R28	U2R29
Date	Oct-96 - Aug-97	Jan-99	Oct-00	Apr-02	Oct-03	Mar-05	Oct-06	Apr-08
Cycle EFPDays	NA	334.39	573.34	463.76	487.17	484.37	456.65	507.00
Cycle EFPMonths	NA	10.99	18.84	15.24	16.01	15.91	15.00	16.66
Cumulative EFPMonths (for first period)	0.00	0.00	18.84	34.07	50.08	65.99	81.00	97.65
Cumulative EFPYears (since replacement)	0.00	0.92	2.49	3.75	5.09	6.41	7.67	9.05

##### **Question 2:**

*On page 1 of Enclosure 1 for the September 16, 2008 letter, it is stated that the tubes are on a 1.0687-inch triangular pitch. On page 1 of Enclosure 1 for the October 13, 2004, letter (ADAMS Accession No. ML042990532), it is stated that the tube pitch and pattern is 1.234" Triangular. Please clarify.*

##### **Response:**

The Unit 2 SGs have a staggered or triangular pitch. This configuration results in different longitudinal (columns) and transverse (rows) pitches as measured between tube centers. The tube arrangement in the Unit 2 SGs have a longitudinal pitch of 1.0687 inches (distance between tube centers between columns) and a transverse pitch of 0.617 inches (tube centers between rows). The calculated diagonal pitch is 1.234 inches (tube centers between tubes of adjacent row and column).

**Question 3:**

*Please confirm that the only service induced indications detected were those listed.*

**Response:**

There were no service induced indications identified during the Spring 2008 Unit 2 SG inspection other than those identified in Reference 1.

**Question 4:**

*Other than foreign object search and retrieval, please discuss the scope and results of any other secondary side inspections. In addition, please discuss the results of your 2006 inspection of the SG B steam drum, upper internals, feedrings, and integrated J-nozzles, as discussed in your February 19, 2007, letter (ADAMS Accession No. ML070590203).*

**Response:**

**U2R29**

In addition to Foreign Object Search and Retrieval (FOSAR) for SG A, visual inspections included:

- Flow Distribution Baffle (FDB) general inspection
- Top (7<sup>th</sup>) support plate including observation of tri-foils
- Upper Internals
  - Steam Drum General Area
  - J-nozzles
  - Primary Moisture Separator Swirl Vanes

In addition to FOSAR for SG B, visual inspections included:

- FDB general inspection
- Top (7<sup>th</sup>) support plate including observation of tri-foils

An upper internals inspection was not required for SG B during this outage.

**Results for SG A:**

The FDB was clear – there was no observed sludge, scale or anomalies.

The top (7<sup>th</sup>) support plate was clear – no visible sludge, scale or anomalies were noted. The tri-foils were clear (no observed blockage).

Upper internals were evaluated, no anomalies were reported. Flow impingement patterns were noted on the outside diameter (OD) of the feedwater distribution pipe ring and on the OD of the primary separator riser barrels at the discharge area of the associated J-nozzles with no discernable depth. All supports and structural welds had no signs of degradation.

All 112 primary moisture separator swirl vanes were visually inspected. No degradation evident of erosion or corrosion was noted.

Portions of the inside diameter of the feedwater distribution pipe ring and integrated J-nozzles were inspected. The only observed indications were burn-through or melt-through at the J-nozzle to feedwater distribution pipe ring interface on eight J-nozzles. This is the same observed manufacturing induced anomaly as reported in inspection reports for Unit 1 SGs where welding at the interface causes some observed protrusion of material in the ID.

#### **Results for SG B:**

The FDB was clear – there was no observed sludge, scale or anomalies.

The top (7<sup>th</sup>) support plate was clear – no visible sludge, scale or anomalies were noted. The tri-foils were clear (no observed blockage).

#### **U2R28**

As stated in the February 19, 2007 letter (ML070590203), during the Fall 2006 Unit 2 outage (U2R28) inspections of the upper internals were completed on SG B only. SG A upper internals inspection was not required in the Fall 2006 Unit 2 SG Inspection.

General visual observed no anomalies in the upper internals. All surfaces were coated with a light layer of magnetite. All supports and structural welds had no signs of degradation.

A sampling of the 112 primary moisture separator swirl vanes was completed with no observed anomalies.

Flow impingement patterns were noted on the outside diameter (OD) of the feedwater distribution pipe ring and on the OD of the primary separator riser barrels at the discharge area of the associated J-nozzles with no discernable depth.

Portions of the inside diameter of the feedwater distribution pipe ring and integrated J-nozzles were inspected including approximately 13 J-nozzle to feedwater distribution pipe ring interfaces. No erosion was noted, no anomalies were observed.

#### **Question 5:**

*In the area around Row 81, Column 42, a possible loose part was reported but this area could not be visually inspected. Please discuss how you assessed that tube integrity would be maintained at this location until the next inspection. In addition, please clarify whether any loose parts (other than those specifically mentioned in your report) were found in either SG.*

#### **Response:**

The area around Row 81, Column 42 was bounded by both bobbin and +Point™ inspections. No degradation was detected with respect to either the tube or the surrounding tubes. The possible loose part (PLP) signal was present only on this tube, which suggests the signal is most likely due to local sludge or scale deposits. In addition, because the PLP signal was present only on one tube at an elevation above the support plate it was judged that the size and location of the PLP was such that tube integrity would not be challenged during the period to the next scheduled inspection. There are no historical indications at this location associated with PLP or wear.

There were no other loose parts found in either SG other than those specifically mentioned in Reference 1.

**Question 6:**

*In Section "c" you imply that 100 percent of the dings in the freespan that are greater than or equal to 5 volts were inspected with a +Point™ probe. In addition, this section also implies that all dings/dents in the U-bend and at tube supports were inspected with a +Point™ probe. Please confirm these inspections were performed since they were not reported in Section "a" of your report.*

**Response:**

Section "c" of Reference 1 identifies the proposed inspection plan for dings in the freespan area at or greater than 5 volts and all dings/dents in the U-bends and tube support areas. The results of the Bobbin probe inspection in the freespan area did not reveal indications of at least 5 volts, thereby negating the need for a +Point™ probe inspection in this area. All of the dings/dents in the U-bend and tube support areas were inspected using a +Point™ probe. No degradation was reported at any of the dent/ding locations.

**Question 7:**

*Wear indications at the anti-vibration bars and at the tube supports were reported for the first time during your 2008 inspections. Please discuss any insights on why these indications appeared to have initiated after ~10 years of operation (e.g., any power uprates or changes in secondary flow conditions).*

**Response:**

The most likely reason is that the indications are at very shallow depths and have a correspondingly low probability of detection. As a result of the anti-vibration bar (AVB) and tube support wear reported, a look back analysis was completed to determine if indications were present as part of the condition monitoring and operational assessment for the spring outage (U2R29). The look back analysis tabulated below for the AVBs shows that wear was observable in some cases:

SG	Row	Col	AVB	Bobbin Probe Depth, %TW				Growth %TW/EFPY
				2008	2003	2000	1998	
				9.03 EFPY	5.09 EFPY	2.49 EFPY	0.92 EFPY	
2A	84	45	AV5	11	No Insp.	8	NDD	0.46
2A	84	45	AV6	5	No Insp.	NDD	NDD	0.76
2A	78	59	AV4	8	No Insp.	6	NDD	0.31
2A	78	59	AV5	7	No Insp.	6	NDD	0.15
2A	84	63	AV5	7	5	NDD	NDD	0.51
2A	79	66	AV5	6	6	NDD	NDD	0
2A	82	69	AV1	7	No Insp.	NDD	NDD	1.07

The look back analysis tabulated below for the tube support indication shows indications were present but not sized:

SG	Row	Col	Support	Bobbin Probe Depth, %TW				Growth %TW/EFPY
				2008	2003	2000	1998	
				9.03 EFPY	5.09 EFPY	2.49 EFPY	0.92 EFPY	
2A	12	53	06H	7	No Insp.	No Size	NDD	1.07
2A	12	53	06H	4	No Insp.	No Size	NDD	0.61

For these indications the growth rate is calculated by taking the difference between the depths at two successive inspections and dividing by the EFPY between those inspections. It is seen that the apparent growth rate is on the order of 1% through wall/effective full power years (TW/EFPY). All of these depths are below the condition monitoring limit defined in the Degradation Assessment. Therefore, condition monitoring is satisfied for AVB and tube support wear in SG A. No AVB or tube support wear was detected in SG B.