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

SUBJECT:  
Beaver Valley Power Station, Unit No. 2  
Docket No. 50-412, License No. NPF-73  
Steam Generator Tube Inspection Report - Technical Specification 5.6.6.2.4

Pursuant to Technical Specification 5.6.6.2.4, FirstEnergy Nuclear Operating Company (FENOC) hereby provides a report containing tube inspection results for Beaver Valley Power Station, Unit No. 2 steam generators. The attachment to this letter provides information required by the technical specification that was obtained during inspections conducted during the spring 2008 refueling outage (2R13).

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 – FENOC Fleet Licensing, at 330-761-6071.

Sincerely,



Peter P. Sena III

Attachment:

Steam Generator Tube Inspection Report - Technical Specification 5.6.6.2.4

cc: Mr. S. J. Collins, NRC Region I Administrator  
Mr. D. L. Werkheiser, NRC Senior Resident Inspector  
Ms. N. S. Morgan, NRR Project Manager  
Mr. D. J. Allard, Director BRP/DEP  
Mr. L. E. Ryan (BRP/DEP)

ADDI  
NRR

**Beaver Valley Power Station Unit No. 2  
Steam Generator Tube Inspection Report  
Technical Specification 5.6.6.2.4**

This report is provided pursuant to Technical Specification 5.6.6.2.4 with respect to steam generator tube inspections conducted during the spring 2008 refueling outage (2R13).

During the 2R13 outage, the Plus Point probe was used to inspect the hot leg top of the tubesheet region. The inspection scope was 100 percent of the active hot leg tubes in all steam generators (SGs). The inspection distance was from 6.0 inches above the top of tubesheet to 3.0 inches below the top of tubesheet, including examination of the F\* distance below the bottom of the roll expansion transition. Ten (10) tubes with roll expansion transitions at lower than nominal elevations were inspected to a depth of 5.0 inches below the top of tubesheet to ensure that the F\* distance was adequately examined.

Tables A through C provide tabulations of inspection results found in the tubesheet region. Consistent with the reporting requirements of TS 5.6.6.2.4, each of the tables provides the following information for the respective SG:

- a. Total number of indications, location of each indication, orientation of each indication, severity of each indication, and whether the indications initiated from the inside or outside surface
- b. The cumulative number of indications detected in the tubesheet region as a function of elevation within the tubesheet
- c. The projected end-of-cycle accident-induced leakage from tubesheet indications

All indications observed were plugged upon detection. All circumferential indications were stabilized prior to installing the hot leg plug. None of the indications that were removed from service during 2R13 represented a leakage potential at postulated main steam line break conditions during Cycle 13. The following is a summary of the degradation observed during the tubesheet region Plus Point examinations.

Table D provides inspection results for indications found in non-tubesheet regions of the SGs.

SG "A" Hot Leg:

Thirty-seven tubes were plugged for indications reported during the hot leg tubesheet region examination. Of the thirty seven tubes, one tube (R32 C28) was reported with a single axial outside diameter stress corrosion cracking (ODSCC) indication located 0.04 inches below the top of tubesheet and one tube (R34 C47) was reported with a single circumferential ODSCC indication located 0.01 inches above the top of tubesheet. The remaining 35 tubes were reported with either single or multiple circumferential ODSCC indications located at or slightly below the top of tubesheet. Table A provides a tabulation of these results.

**Table A**  
**2RCS-SG21A**  
**2R13 Tubesheet Indications**

Indication Location				Orientation**	Severity			Initiation Surface	Projected Leakage
SG	Row	Column	Elevation*		Volts***	Axial Length	Arc Length		
A	2	57	TSH -0.07"	SCI	0.17		42°	ODSCC	0
A	2	70	TSH -0.13"	SCI	0.14		74°	ODSCC	0
A	7	55	TSH -0.05"	SCI	0.09		34°	ODSCC	0
A	7	65	TSH -0.07"	SCI	0.10		38°	ODSCC	0
A	7	81	TSH -0.11"	SCI	0.18		66°	ODSCC	0
A	8	30	TSH -0.09"	SCI	0.22		110°	ODSCC	0
A	11	82	TSH -0.12"	SCI	0.16		48°	ODSCC	0
A	19	23	TSH -0.11"	SCI	0.12		99°	ODSCC	0
A	19	50	TSH -0.11"	SCI	0.14		30°	ODSCC	0
A	20	38	TSH -0.16"	SCI	0.12		27°	ODSCC	0
A	20	41	TSH -0.10"	SCI	0.17		182°	ODSCC	0
A	21	17	TSH -0.10"	SCI	0.18		117°	ODSCC	0
A	22	38	TSH -0.13"	SCI	0.12		37°	ODSCC	0
A	24	21	TSH -0.11"	SCI	0.23		110°	ODSCC	0
A	25	23	TSH -0.17"	SCI	0.11		125°	ODSCC	0
A	27	21	TSH -0.02"	SCI	0.26		80°	ODSCC	0
A	27	39	TSH -0.11"	SCI	0.12		35°	ODSCC	0
A	27	67	TSH -0.05"	SCI	0.16		82°	ODSCC	0
A	27	68	TSH -0.07"	SCI	0.10		206°	ODSCC	0
A	28	25	TSH -0.14"	SCI	0.08		114°	ODSCC	0
A	28	29	TSH -0.14"	SCI	0.16		114°	ODSCC	0
A	28	71	TSH -0.06"	SCI	0.08		61°	ODSCC	0
A	29	23	TSH -0.16"	SCI	0.23		110°	ODSCC	0
A	30	23	TSH -0.17"	SCI	0.14		129°	ODSCC	0
A	30	71	TSH -0.04"	SCI	0.25		104°	ODSCC	0
A	30	72	TSH -0.01"	MCI	0.50		122°	ODSCC	0
A	30	73	TSH -0.14"	SCI	0.07		26°	ODSCC	0
A	32	28	TSH -0.04"	SAI	0.33	0.23"		ODSCC	0
A	33	35	TSH -0.07"	SCI	0.13		33°	ODSCC	0
A	34	47	TSH +0.01"	SCI	0.10		27°	ODSCC	0
A	35	67	TSH -0.06"	SCI	0.49		137°	ODSCC	0
A	36	33	TSH -0.08"	SCI	0.21		71°	ODSCC	0
A	37	62	TSH 0.00"	MCI	0.22		34°	ODSCC	0
A	38	33	TSH -0.09"	SCI	0.11		38°	ODSCC	0
A	40	52	TSH -0.10"	SCI	0.33		40°	ODSCC	0
A	41	39	TSH -0.09"	SCI	0.12		62°	ODSCC	0
A	41	44	TSH -0.04"	MCI	0.11		30°	ODSCC	0

\* TSH - Tubesheet-hot (secondary side of tubesheet)

\*\* SCI – single circumferential indication

SAI – single axial indication

MCI – multiple circumferential indications

\*\*\* Volts reported using the 300 kHz Plus Point coil

SG "B" Hot Leg:

Twenty-seven tubes were plugged for indications reported during the hot leg tubesheet region examination. Of the twenty seven tubes; one tube (R20 C25) was reported with a single axial ODSCC indication located 0.17 inches above the top of tubesheet, one tube (R6 C36) was reported with an single axial primary water stress corrosion cracking (PWSCC) indication located 0.05 inches below the top of tubesheet and one tube (R8 C51) was reported with a single circumferential ODSCC indication located 0.01 inches above the top of tubesheet. The remaining 24 tubes were reported with either single or multiple circumferential ODSCC indications located at or slightly below the top of tubesheet. Table B provides a tabulation of these results.

**Table B**  
**2RCS-SG21B**  
**2R13 Tubesheet Indications**

Indication Location				Orientation**	Severity			Initiation Surface	Projected Leakage
SG	Row	Column	Elevation*		Volts***	Axial Length	Arc Length		
B	3	17	TSH -0.03"	SCI	0.14		45°	ODSCC	0
B	6	36	TSH -0.05"	SAI	0.29	0.15"		PWSCC	0
B	8	38	TSH -0.10"	SCI	0.10		89°	ODSCC	0
B	8	51	TSH +0.01"	SCI	0.12		40°	ODSCC	0
B	9	45	TSH -0.08"	SCI	0.15		45°	ODSCC	0
B	9	47	TSH -0.05"	SCI	0.09		34°	ODSCC	0
B	10	47	TSH 0.00"	MCI	0.19		173°	ODSCC	0
B	15	14	TSH -0.05"	SCI	0.11		83°	ODSCC	0
B	16	17	TSH -0.09"	SCI	0.27		60°	ODSCC	0
B	16	22	TSH -0.05"	SCI	0.10		19°	ODSCC	0
B	16	23	TSH -0.04"	SCI	0.11		26°	ODSCC	0
B	19	32	TSH -0.05"	SCI	0.12		64°	ODSCC	0
B	19	44	TSH -0.09"	SCI	0.07		93°	ODSCC	0
B	19	47	TSH -0.05"	MCI	0.18		173°	ODSCC	0
B	20	25	TSH +0.17"	SAI	0.15	0.18"		ODSCC	0
B	20	60	TSH -0.06"	SCI	0.17		171°	ODSCC	0
B	20	75	TSH -0.10"	SCI	0.07		68°	ODSCC	0
B	22	41	TSH -0.08"	SCI	0.09		75°	ODSCC	0
B	28	45	TSH -0.08"	MCI	0.15		146°	ODSCC	0
B	28	58	TSH -0.08"	MCI	0.11		180°	ODSCC	0
B	30	39	TSH -0.10"	SCI	0.09		26°	ODSCC	0
B	32	44	TSH -0.07"	SCI	0.12		45°	ODSCC	0
B	33	38	TSH -0.10"	SCI	0.09		64°	ODSCC	0
B	33	39	TSH -0.05"	SCI	0.15		38°	ODSCC	0
B	33	47	TSH -0.08"	SCI	0.18		45°	ODSCC	0
B	33	58	TSH -0.04"	SCI	0.11		71°	ODSCC	0
B	37	37	TSH -0.06"	SCI	0.19		56°	ODSCC	0

\* TSH - Tubesheet-hot (secondary side of tubesheet)

\*\* SCI – single circumferential indication  
SAI – single axial indication  
MCI – multiple circumferential indications

\*\*\* Volts reported using the 300 kHz Plus Point coil

SG "C" Hot Leg:

Sixteen tubes were plugged for indications reported during the hot leg tubesheet region examination. Of the sixteen tubes; one tube (R5 C38) was reported with a single axial ODSCC indication located 0.11 inches above the top of tubesheet. The remaining 15 tubes were reported with either single or multiple circumferential ODSCC indications located below the top of tubesheet. Table C is a tabulation of these results.

**Table C**  
**2RCS-SG21C**  
**2R13 Tubesheet Indications**

Indication Location				Orientation**	Severity			Initiation Surface	Projected Leakage
SG	Row	Column	Elevation*		Volts***	Axial Length	Arc Length		
C	2	82	TSH -0.11"	SCI	0.29		88°	ODSCC	0
C	5	38	TSH +0.11"	SAI	0.08	0.08"		ODSCC	0
C	6	31	TSH -0.05"	SCI	0.09		89°	ODSCC	0
C	7	34	TSH -0.05"	SCI	0.10		76°	ODSCC	0
C	8	38	TSH -0.02"	SCI	0.12		22°	ODSCC	0
C	8	44	TSH -0.05"	SCI	0.08		31°	ODSCC	0
C	10	40	TSH -0.03"	SCI	0.09		22°	ODSCC	0
C	13	38	TSH -0.08"	SCI	0.08		55°	ODSCC	0
C	16	91	TSH -0.22"	SCI	0.16		64°	ODSCC	0
C	24	24	TSH -0.06"	SCI	0.25		111°	ODSCC	0
C	27	36	TSH -0.09"	SCI	0.10		22°	ODSCC	0
C	33	62	TSH -0.05"	MCI	0.10		189****	ODSCC	0
C	35	60	TSH -0.07"	SCI	0.17		30°	ODSCC	0
C	36	60	TSH -0.09"	SCI	0.12		140°	ODSCC	0
C	36	65	TSH -0.08"	SCI	0.06		34°	ODSCC	0
C	37	61	TSH -0.08"	SCI	0.26		182°	ODSCC	0

\* TSH - Tubesheet-hot (secondary side of tubesheet)

\*\* SCI – single circumferential indication  
SAI – single axial indication  
MCI – multiple circumferential indications

\*\*\* Volts reported using the 300 kHz Plus Point coil

\*\*\*\* Profile analysis shows two separate flaw segments separated by a non-degraded ligament of approximately 48 degrees in arc length

Non-Tubesheet Region:

There were an additional four tubes plugged for non-tubesheet region related degradation. Three tubes were reported with single axial indications located within the hot leg tube support plates and one tube was reported with a circumferential indication located within a hot leg "free-span" ding. Table D is a tabulation of these results.

**Table D  
 2R13 Non-Tubesheet Region Indications**

Indication Location				Orientation**	Severity			Initiation Surface	Projected Leakage
SG	Row	Column	Elevation*		Volts***	Axial Length	Arc Length		
C	11	15	03H -0.14"	SAI	0.18	0.46"		ODSCC	0
C	20	12	04H -0.09"	SAI	0.13	0.15"		ODSCC	0
C	23	58	06H +30.87"	SCI	0.96		30°	ODSCC	0
C	32	68	03H 0.00"	SAI	0.14	0.36"		ODSCC	0

\* 03H, 04H, 06H = 3rd, 4th or 6th Hot Leg tube support plate

\*\* SAI – single axial indication  
 SCI – single circumferential indication

\*\*\*Volts reported using the 300 kHz Plus Point coil