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2CAN081404

August 18, 2014

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

Subject: Steam Generator Tube Inspection Report – 2R23  
Arkansas Nuclear One - Unit 2  
Docket No. 50-368  
License No. NPF-6

Dear Sir or Madam:

Entergy Operations, Inc. (Entergy) inspected the Arkansas Nuclear One, Unit 2 (ANO-2) Steam Generator (SG) tubes during the Spring 2014 refueling outage (2R23) in accordance with ANO-2 Technical Specification (TS) 6.5.9, "Steam Generator (SG) Program." ANO-2 TS 6.6.7, "Steam Generator Tube Inspection Report", requires that the results of inspections performed during the report period be submitted to the NRC within 180 days after the initial entry into Mode 4. The initial entry into Mode 4 post-2R23 occurred on June 9, 2014. Enclosed is the subject inspection report.

The 2R23 inspection performed on both SGs involved an initial full-length bobbin coil examination of 100%. The Plus-Point probe was used for diagnostic testing.

This submittal completes the reporting requirements of the ANO-2 TSs for this inspection.

This submittal contains no regulatory commitments. Should you have any questions, please contact me.

Sincerely,

**ORIGINAL SIGNED BY STEPHENIE L. PYLE**

SLP/rwc

Enclosure: Results of ANO-2 Steam Generator (SG) Tube Inspections During 2R23

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**ENCLOSURE TO**

**2CAN081404**

**Results of ANO-2 Steam Generator (SG) Tube  
Inspections During 2R23**

## RESULTS OF ANO-2 STEAM GENERATOR (SG) TUBE INSPECTIONS DURING 2R23

### 1 INTRODUCTION

Arkansas Nuclear One, Unit 2 (ANO-2) Technical Specification (TS) 6.6.7, "Steam Generator Tube Inspection Report," requires Entergy Operations, Inc. (Entergy) to submit a 180-day report to the NRC that outlines the details of the SG tubing inspections that were performed during the reporting period. The report shall include:

1. The scope of inspections performed on each SG.
2. Active degradation mechanisms found.
3. Nondestructive examination (NDE) techniques utilized for each degradation mechanism.
4. Location, orientation (if linear), and measured sizes (if available) of service-induced indications.
5. Number of tubes plugged during the inspection outage for each active degradation mechanism.
6. Total number and percentage of tubes plugged to date.
7. The results of condition monitoring, including the results of tube pulls and in-situ testing.

The operating period for this report includes one outage, a refueling inspection (2R23) which began May 11, 2014, and was the fourth In-service Inspection (ISI) following the SG replacement outage. This report details the result of that inspection.

**Table 1-1**  
**ANO-2 Operating Cycles Since SG Replacement**

<b>Outage Designator</b>	<b>Outage Date</b>	<b>Cycle Effective Full Power Year (EFPY)</b>	<b>Cumulative SG EFPY</b>	<b>Notes</b>
2R14	2000	0	0	Baseline (PSI)
2R15	2002	1.35	1.35	1 <sup>st</sup> ISI
2R16	2003	1.35	2.7	Skip
2R17	2005	1.36	4.06	54% Bobbin
2R18	2006	1.43	5.49	Skip
2R19	2008	1.35	6.84	Skip
2R20	2009	1.42	8.62	100% Bobbin
2R21	2011	1.40	10.02	Skip
2R22	2012	1.43	11.45	Skip
2R23	2014	1.39	12.84	100% Bobbin

## 2 DESIGN

The ANO-2 replacement SGs (RSGs) are Westinghouse Model Delta 109 SGs with 10637 thermally treated Alloy 690 U-tubes. The nominal tube dimensions are outside diameter of 0.688 inch with 0.040 inch wall thickness. The tubes are hydraulically expanded through the tubesheet thickness. Tubes are supported by eight, broached-hole tube support plates (TSPs). In the U-bend region the tubes are supported by five sets of staggered Type 405 stainless steel anti-vibration bars (AVBs). Due to the staggered arrangement of the AVBs, as many as 20 potential intersection sites are available to some tubes. Thus the AVB intersection sites are designated A01 to A20, from the hot leg to cold leg side.

## 3 REPORT REQUIREMENTS

### 3.1 The Scope of Inspections Performed on Each SG.

Table 3.1.1 lists the inspection scope of 2R23.

**Table 3.1.1**  
**2R23 Inspection Scope**

<b>SG A</b>				
<b>Examination Type</b>	<b>Inspections Conducted</b>	<b>% Scope</b>	<b>Extent Tested</b>	
Bobbin	10632	100	TEC to TEH	
Array Periphery HL	1072	10	01H to TEH	
Array Periphery CL	1062	10	01C to TEC	
Special Interest Array / +Point	50	100	Various	

<b>SG B</b>				
<b>Examination Type</b>	<b>Inspections Conducted</b>	<b>% Scope</b>	<b>Extent Tested</b>	
Bobbin	10624	100	TEC to THE	
Array Periphery HL	1066	10	01H to THE	
Array Periphery CL	1058	10	01C to TEC	
Special Interest Array / +Point	66	100	Various	

Note: HL = Hot Leg  
CL = Cold Leg  
TEC = Tube End Cold  
TEH = Tube End Hot

### 3.2 Active Degradation Mechanisms Found.

The degradation mechanisms found during the 2R23 inspection of the SG tubes were mechanical wear at AVB and TSP. Previous loose part wear indications were reconfirmed and sized with no active increase in wear depth.

There were no new dents reported which were not present in previous inspection data. The reported dent population fluctuates slightly from inspection to inspection due to the fact that a reporting threshold (2 Vpp) is applied.

The majority of confirmed possible loose parts (PLP) indications were historical. In SG B, three parts were removed which reduced the number of tubes with PLP indications from 15 to 1.

The subject indications are listed in Table 3.2.1.

**Table 3.2.1**  
**Indication List for 2R23**

<b>SG</b>	<b>AVB Wear</b>	<b>TSP Wear</b>	<b>Loose Part Wear</b>	<b>PLP</b>	<b>Dents</b>
A	125	9	8	15	1128
B	102	20	4	15 (14 removed)	580

### 3.3 NDE Techniques Utilized for Each Degradation Mechanism.

Mechanism Location	Sample Size	Probe	Detection ETSS	Sizing ETSS	NDE Standard Error of Regression Uncertainty
Wear at Structures	100%	Bobbin	96004.1 Rev. 13	96004.1 Rev. 13	4.19% TW
Wear at Structures	100%	Array	11956.3 Rev. 3	11956.3 Rev. 3	2.42% TW
Wear at Structures	100%	+Point	96910.1 Rev. 10	96910.1 Rev. 10	6.68% TW
Volumetric Freespan	100%	Bobbin	27091.2 Rev. 1	27091.2 Rev. 1	13.49% TW
Volumetric Freespan	100%	+Point	27901.1 Rev. 1	27901.1 Rev. 1	2.30% TW
Circumferential ODSCC (extended to detection of volumetric degradation)	100%	Array	20400.1 Rev. 5	NA	NA
Axial ODSCC (extended to detection of volumetric degradation)	100%	Array	20402.1 Rev. 5	NA	NA
Tube to Tube Wear Freespan	100%	Bobbin	13091.1 Rev. 0	13091.1 Rev. 0	1.57% TW
Tube to Tube Wear Freespan	100%	Array	13902.1 Rev. 0	13902.1 Rev. 0	1.87% TW
Tube to Tube Wear Freespan	100%	+Point	13901.1 Rev. 1	13901.1 Rev. 1	1.50% TW
Notes: 1. The most applicable ECT techniques are listed in this table. The essential variables applied during 2R23 inspection would allow the application of numerous additional EPRI ETSS had they been needed. 2. The highlighted cells identify the techniques used for depth sizing degradation during 2R23.					

TW                      Throughwall  
EPRI                    Electric Power Research Institute  
ETSS                   Examination Technical Specification Sheet

**3.4 Location, Orientation (if linear), and Measured Sizes (if available) of Service Induced Indications.**

The only service induced mechanism is wear at the AVBs, TSPs, and previous wear due to loose parts that were removed. Due to the large number of indications, these are listed in Attachments 1 and 2 for SG A and SG B, respectively.

**3.5 Number of Tubes Plugged During the Inspection Outage for Each Active Degradation Mechanism.**

There were 5 tubes in SG A and 5 tubes in SG B plugged during the outage. This included all tubes with any type of wear  $\geq 30\%$  TW, as listed in Table 3.5.1 below.

**Table 3.5.1  
Tubes Plugged**

<b>SG</b>	<b>ROW</b>	<b>COL</b>	<b>Indication</b>
A	119	76	31% max depth, AVB Wear at A09
A	112	33	33% max depth, AVB Wear at A14
A	135	76	35% max depth, AVB Wear at A14
A	137	82	36% max depth, AVB Wear at A14
A	135	80	43% max depth, AVB Wear at A12
B	125	92	30% max depth, AVB Wear at A16
B	139	94	30% max depth, AVB Wear at A10
B	142	97	34% max depth, AVB Wear at A11
B	134	93	43% max depth, AVB Wear at A13
B	129	66	40% max depth, AVB Wear at A12



### 3.6 Total Number and Percentage of Tubes Plugged to Date.

There are no sleeves installed in either generator. The plugging information is listed in Tables 3.6.1 and 3.6.2.

**Table 3.6.1**  
**Cumulative Plugs in Service (SG A)**

Year	Outage	Installed	Cumulative	% Plugged
2000	Fabrication	0	0	0
2000	Baseline	0	0	0
2002	2R15	0	0	0
2005	2R17	4	4	0.0004
2009	2R20	1	5	0.0005
2014	2R23	5	10	0.0009

**Table 3.6.2**  
**Cumulative Plugs in Service (SG B)**

Year	Outage	Installed	Cumulative	% Plugged
2000	Fabrication	1	1	0.00009
2000	Baseline	0	1	0.00009
2002	2R15	0	1	0.00009
2005	2R17	7	8	0.0008
2009	2R20	5	13	0.0012
2014	2R23	5	18	0.0017

### 3.7 The Results of Condition Monitoring, Including the Results of Tube Pulls and In-Situ Testing.

During the ANO-2 SG tube inspection, no indications exceeding the structural integrity limits for fretting wear (i.e., burst integrity > 3 times normal operating primary to secondary pressure differential across SG tubes) were detected. Delta 109 SGs are not subject to adjustment of the structural integrity performance criterion due to secondary loading effects thus the performance criterion is based on application of a safety factor of 3 upon the normal operating primary to secondary pressure differential. Therefore, no tubes were identified to contain eddy current indications that could potentially challenge the tube integrity requirements.

Per Nuclear Energy Institute (NEI) 97-06, the SG program shall include measures to maintain SG secondary side integrity. The secondary side inspection plan for ANO-2 details the specific inspections for 2R23. A summary of these inspections is provided below:

Visual inspections of the steam drum were performed, which included the feed ring, primary and secondary steam separators, and the outlet venturi. All visually inspected components were found satisfactory

An annulus inspection was performed using remote equipment on both generators to evaluate possible loose parts. The inspection was performed completely around the periphery and across the center tube lane in both generators. Three machine remnants were removed from SG B. The identification of PLPs in SG B during 2R23 eddy current testing was entered in the ANO Corrective Action Program. Tube wall wear was not indicated at the three loose part locations. The machine remnants have been retrieved and no tube wear has been observed.

There were no tube pulls performed or in-situ test performed.

### **3.8 The effective plugging percentage for all plugging in each SG**

Since there are no sleeves installed, the effective plugging percentage is the same as that for just the plugging. See Table 3.6.1 for the values.

Attachment 1						
Wear Indications – SG A						
FLAW	ROW	COL	TWD	LOCATION	ELEVATION	INDICATION
1	3	28	9	A01	-0.14	AVB WEAR
2	37	142	11	A03	0.69	AVB WEAR
3	43	148	13	A06	0.28	AVB WEAR
4	52	39	8	A07	0.00	AVB WEAR
5	52	123	10	A07	0.64	AVB WEAR
6	52	135	7	A07	0.47	AVB WEAR
7	52	143	13	A07	0.44	AVB WEAR
8	52	175	8	A06	-0.29	AVB WEAR
9	53	34	7	A07	0.08	AVB WEAR
10	57	174	8	A17	-0.13	AVB WEAR
11	59	60	8	A07	-0.11	AVB WEAR
12	60	171	6	A13	-0.33	AVB WEAR
13	60	171	10	A07	0.00	AVB WEAR
14	60	173	11	A16	-0.13	AVB WEAR
15	62	13	14	A05	0.19	AVB WEAR
16	63	10	9	A15	0.00	AVB WEAR
17	63	46	11	A14	0.00	AVB WEAR
18	64	61	6	A08	0.61	AVB WEAR
19	64	67	8	A13	-0.50	AVB WEAR
20	65	144	10	A13	-0.54	AVB WEAR
21	66	13	8	A05	0.21	AVB WEAR
22	70	61	5	A13	-0.08	AVB WEAR
23	74	15	17	A18	0.16	AVB WEAR
24	74	15	8	A05	-0.69	AVB WEAR
25	74	167	8	A07	0.13	AVB WEAR
26	77	68	9	A13	0.08	AVB WEAR
27	80	73	8	A09	-0.05	AVB WEAR
28	80	87	16	A09	0.84	AVB WEAR
29	80	89	10	A12	-0.53	AVB WEAR
30	80	117	12	A09	-0.13	AVB WEAR
31	80	121	13	A09	0.41	AVB WEAR
32	80	125	10	A09	0.28	AVB WEAR

Attachment 1						
Wear Indications – SG A						
FLAW	ROW	COL	TWD	LOCATION	ELEVATION	INDICATION
33	80	133	7	A09	0.37	AVB WEAR
34	81	62	10	A09	0.08	AVB WEAR
35	81	94	7	A09	0.18	AVB WEAR
36	83	18	8	A17	0.00	AVB WEAR
37	83	18	12	A15	-0.21	AVB WEAR
38	84	111	9	A09	-0.08	AVB WEAR
39	84	165	12	A15	0.15	AVB WEAR
40	87	108	16	A09	0.08	AVB WEAR
41	89	96	8	A09	-0.05	AVB WEAR
42	89	110	7	A09	0.08	AVB WEAR
43	89	124	19	A04	-0.08	AVB WEAR
44	89	124	13	A03	-0.51	AVB WEAR
45	89	162	11	A14	0.13	AVB WEAR
46	96	101	11	A10	0.35	AVB WEAR
47	99	82	8	A16	0.00	AVB WEAR
48	99	82	8	A09	0.05	AVB WEAR
49	102	91	8	A09	-0.30	AVB WEAR
50	103	94	9	A09	0.03	AVB WEAR
51	104	81	12	A17	0.00	AVB WEAR
52	105	90	17	A14	-0.03	AVB WEAR
53	105	152	10	A12	0.10	AVB WEAR
54	106	107	6	A12	0.11	AVB WEAR
55	109	90	15	A20	0.00	AVB WEAR
56	109	90	15	A11	0.00	AVB WEAR
57	109	90	19	A08	0.03	AVB WEAR
58	112	33	9	A20	0.24	AVB WEAR
59	112	33	11	A18	0.21	AVB WEAR
60	112	33	18	A16	0.05	AVB WEAR
61	112	33	33	A14	0.00	AVB WEAR
62	112	33	9	A09	0.27	AVB WEAR
63	112	91	9	A07	-0.13	AVB WEAR
64	114	81	8	A12	0.11	AVB WEAR
65	117	100	13	A09	0.00	AVB WEAR

Attachment 1						
Wear Indications – SG A						
FLAW	ROW	COL	TWD	LOCATION	ELEVATION	INDICATION
66	119	76	22	A13	0.00	AVB WEAR
67	119	76	21	A12	0.00	AVB WEAR
68	119	76	31	A09	0.00	AVB WEAR
69	119	100	7	A08	-0.16	AVB WEAR
70	121	86	29	A09	0.08	AVB WEAR
71	121	138	8	A16	0.00	AVB WEAR
72	121	138	13	A13	0.00	AVB WEAR
73	123	46	12	A15	0.03	AVB WEAR
74	123	46	9	A13	0.19	AVB WEAR
75	124	45	20	A14	0.00	AVB WEAR
76	124	47	11	A16	0.00	AVB WEAR
77	124	47	18	A14	0.00	AVB WEAR
78	124	91	8	A11	0.21	AVB WEAR
79	124	95	9	A17	0.00	AVB WEAR
80	124	95	27	A16	-0.03	AVB WEAR
81	124	95	18	A14	0.11	AVB WEAR
82	124	95	11	A14	-0.21	AVB WEAR
83	125	48	15	A13	0.00	AVB WEAR
84	126	113	9	A10	-0.09	AVB WEAR
85	127	78	11	A16	0.00	AVB WEAR
86	128	75	16	A16	0.00	AVB WEAR
87	128	75	18	A12	0.00	AVB WEAR
88	132	73	12	A09	0.00	AVB WEAR
89	132	75	27	A12	0.00	AVB WEAR
90	132	127	10	A07	0.05	AVB WEAR
91	133	68	16	A16	0.00	AVB WEAR
92	133	68	13	A14	0.00	AVB WEAR
93	133	82	25	A12	0.00	AVB WEAR
94	133	96	10	A14	-0.03	AVB WEAR
95	135	76	10	A19	0.03	AVB WEAR
96	135	76	12	A16	0.00	AVB WEAR
97	135	76	35	A14	0.00	AVB WEAR
98	135	80	18	A19	0.05	AVB WEAR

Attachment 1						
Wear Indications – SG A						
FLAW	ROW	COL	TWD	LOCATION	ELEVATION	INDICATION
99	135	80	15	A17	0.03	AVB WEAR
100	135	80	8	A15	0.05	AVB WEAR
101	135	80	43	A12	0.13	AVB WEAR
102	135	80	21	A09	0.13	AVB WEAR
103	135	80	14	A07	0.10	AVB WEAR
104	135	86	9	A09	0.00	AVB WEAR
105	135	98	12	A10	-0.13	AVB WEAR
106	135	102	10	A17	0.00	AVB WEAR
107	135	102	20	A15	0.00	AVB WEAR
108	135	102	15	A14	0.00	AVB WEAR
109	135	102	23	A10	0.00	AVB WEAR
110	135	102	12	A08	0.00	AVB WEAR
111	135	122	10	A09	0.00	AVB WEAR
112	137	74	10	A12	0.00	AVB WEAR
113	137	82	22	A16	0.00	AVB WEAR
114	137	82	36	A14	0.00	AVB WEAR
115	137	82	20	A12	0.00	AVB WEAR
116	137	82	15	A08	0.00	AVB WEAR
117	137	82	20	A06	0.00	AVB WEAR
118	138	83	19	A11	0.03	AVB WEAR
119	138	119	10	A12	0.03	AVB WEAR
120	138	119	8	A09	0.00	AVB WEAR
121	138	123	12	A13	0.11	AVB WEAR
122	139	88	8	A15	0.00	AVB WEAR
123	139	88	8	A11	0.00	AVB WEAR
124	139	88	12	A09	0.03	AVB WEAR
125	139	114	8	A09	0.08	AVB WEAR
126	1	22	11	03C	0.50	TSP WEAR
127	2	1	16	02C	-0.48	TSP WEAR
128	5	2	13	03C	-0.45	TSP WEAR
129	105	50	16	08C	0.38	TSP WEAR
130	106	27	12	03C	0.42	TSP WEAR
131	138	55	16	08H	-0.51	TSP WEAR

Attachment 1						
Wear Indications – SG A						
FLAW	ROW	COL	TWD	LOCATION	ELEVATION	INDICATION
132	142	61	11	08H	-0.56	TSP WEAR
133	143	114	13	08C	0.34	TSP WEAR
134	148	71	12	03H	-0.50	TSP WEAR
135	143	112	11	05H	-16.80	LOOSE PART WEAR
136	142	111	25	01H	-7.95	LOOSE PART WEAR
137	142	119	6	01H	-5.12	LOOSE PART WEAR
138	142	119	15	01H	-4.51	LOOSE PART WEAR
139	144	119	12	01H	-6.61	LOOSE PART WEAR
140	146	113	15	01H	-8.35	LOOSE PART WEAR
141	146	115	9	01H	-9.65	LOOSE PART WEAR
142	146	115	10	01H	-8.85	LOOSE PART WEAR

**Attachment 2**  
**Wear Indications – SG B**

FLAW	ROW	COL	TWD	LOCATION	ELEVATION	INDICATION
1	40	177	14	A16	-0.03	AVB WEAR
2	42	177	12	A16	-0.27	AVB WEAR
3	44	177	14	A16	-0.19	AVB WEAR
4	50	41	11	A14	-0.32	AVB WEAR
5	52	109	5	A07	0.00	AVB WEAR
6	53	142	8	A07	-0.14	AVB WEAR
7	59	170	9	A07	-0.43	AVB WEAR
8	61	164	12	A14	-0.05	AVB WEAR
9	64	47	8	A08	0.71	AVB WEAR
10	64	103	5	A08	0.00	AVB WEAR
11	69	170	11	A07	-0.06	AVB WEAR
12	70	169	16	A07	0.13	AVB WEAR
13	70	169	11	A05	0.08	AVB WEAR
14	79	118	9	A09	-0.65	AVB WEAR
15	80	79	4	A09	0.35	AVB WEAR
16	80	95	17	A09	0.33	AVB WEAR
17	81	82	9	A14	0.08	AVB WEAR
18	82	69	9	A08	-0.14	AVB WEAR
19	83	128	9	A09	0.03	AVB WEAR
20	86	91	8	A17	0.00	AVB WEAR
21	96	105	6	A10	0.00	AVB WEAR
22	100	91	8	A07	-0.13	AVB WEAR
23	105	86	10	A09	0.03	AVB WEAR
24	109	102	12	A19	0.00	AVB WEAR
25	109	102	14	A18	0.00	AVB WEAR
26	109	102	13	A13	0.00	AVB WEAR
27	109	102	7	A05	0.00	AVB WEAR
28	110	133	8	A16	-0.11	AVB WEAR
29	111	92	17	A11	-0.59	AVB WEAR
30	111	96	16	A16	-0.05	AVB WEAR
31	111	96	23	A15	-0.03	AVB WEAR
32	111	102	8	A13	0.00	AVB WEAR



**Attachment 2**  
**Wear Indications – SG B**

FLAW	ROW	COL	TWD	LOCATION	ELEVATION	INDICATION
33	111	108	11	A09	-0.16	AVB WEAR
34	112	105	8	A07	0.00	AVB WEAR
35	112	149	16	A18	0.00	AVB WEAR
36	112	149	8	A14	-0.40	AVB WEAR
37	112	149	10	A12	-0.48	AVB WEAR
38	113	90	6	A07	0.21	AVB WEAR
39	113	92	9	A17	0.00	AVB WEAR
40	113	92	19	A14	0.00	AVB WEAR
41	113	94	27	A13	-0.03	AVB WEAR
42	115	92	12	A13	0.00	AVB WEAR
43	115	104	13	A12	0.00	AVB WEAR
44	116	57	10	A18	0.00	AVB WEAR
45	116	57	16	A16	0.05	AVB WEAR
46	116	99	15	A12	-0.11	AVB WEAR
47	116	99	17	A09	-0.03	AVB WEAR
48	116	99	7	A06	-0.03	AVB WEAR
49	120	63	10	A16	0.00	AVB WEAR
50	122	91	17	A13	0.00	AVB WEAR
51	124	83	8	A09	-0.03	AVB WEAR
52	124	99	8	A10	0.00	AVB WEAR
53	125	46	11	A13	0.19	AVB WEAR
54	125	46	8	A11	0.11	AVB WEAR
55	125	56	9	A14	0.19	AVB WEAR
56	125	62	8	A19	0.16	AVB WEAR
57	125	62	8	A16	0.00	AVB WEAR
58	125	82	10	A14	0.00	AVB WEAR
59	125	92	30	A16	-0.05	AVB WEAR
60	125	92	9	A13	0.11	AVB WEAR
61	125	92	17	A10	0.00	AVB WEAR
62	125	96	20	A15	0.00	AVB WEAR
63	125	96	11	A13	0.00	AVB WEAR
64	125	140	8	A11	-0.98	AVB WEAR
65	128	61	10	A15	0.03	AVB WEAR

**Attachment 2**  
**Wear Indications – SG B**

FLAW	ROW	COL	TWD	LOCATION	ELEVATION	INDICATION
66	128	61	12	A12	0.00	AVB WEAR
67	128	93	8	A14	-0.16	AVB WEAR
68	128	93	17	A12	-0.03	AVB WEAR
69	129	66	40	A12	0.00	AVB WEAR
70	129	66	10	A09	0.00	AVB WEAR
71	130	133	9	A17	-0.24	AVB WEAR
72	132	53	11	A13	0.32	AVB WEAR
73	132	57	10	A13	0.03	AVB WEAR
74	132	57	9	A12	-0.03	AVB WEAR
75	132	83	7	A07	0.00	AVB WEAR
76	133	94	19	A14	-0.03	AVB WEAR
77	134	93	8	A17	-0.03	AVB WEAR
78	134	93	39	A15	0.00	AVB WEAR
79	134	93	43	A13	-0.03	AVB WEAR
80	136	115	16	A15	0.00	AVB WEAR
81	136	115	14	A14	0.00	AVB WEAR
82	136	115	8	A12	0.00	AVB WEAR
83	136	115	10	A09	0.11	AVB WEAR
84	137	92	13	A16	0.00	AVB WEAR
85	137	92	12	A09	0.00	AVB WEAR
86	138	91	10	A11	0.00	AVB WEAR
87	138	105	20	A12	0.00	AVB WEAR
88	139	94	30	A10	0.00	AVB WEAR
89	140	71	8	A15	0.16	AVB WEAR
90	140	71	8	A11	0.24	AVB WEAR
91	140	77	12	A13	0.03	AVB WEAR
92	140	77	18	A12	0.00	AVB WEAR
93	140	77	22	A09	-0.74	AVB WEAR
94	140	99	11	A18	0.08	AVB WEAR
95	140	99	9	A12	0.00	AVB WEAR
96	140	121	8	A09	-0.63	AVB WEAR
97	142	83	11	A11	-0.03	AVB WEAR
98	142	83	9	A10	0.08	AVB WEAR

**Attachment 2**  
**Wear Indications – SG B**

FLAW	ROW	COL	TWD	LOCATION	ELEVATION	INDICATION
99	142	91	22	A15	-0.03	AVB WEAR
100	142	91	15	A13	-0.08	AVB WEAR
101	142	91	21	A11	-0.03	AVB WEAR
102	142	97	34	A11	0.00	AVB WEAR
103	4	81	10	05C	0.53	TSP WEAR
104	8	99	13	05C	-0.27	TSP WEAR
105	77	168	8	06C	0.53	TSP WEAR
106	77	168	13	05C	0.55	TSP WEAR
107	90	163	12	05C	-0.19	TSP WEAR
108	92	161	10	05C	0.40	TSP WEAR
109	92	161	8	04C	-0.50	TSP WEAR
110	94	161	10	04C	0.63	TSP WEAR
111	97	158	10	04C	0.48	TSP WEAR
112	136	53	10	05C	0.43	TSP WEAR
113	139	126	12	08H	-0.67	TSP WEAR
114	140	123	13	06H	-0.55	TSP WEAR
115	141	60	13	04H	0.42	TSP WEAR
116	143	62	15	05C	-0.61	TSP WEAR
117	144	63	13	05C	-0.54	TSP WEAR
118	144	67	9	05C	0.59	TSP WEAR
119	144	67	9	05C	-0.24	TSP WEAR
120	146	113	11	05H	-0.61	TSP WEAR
121	148	109	11	04H	-0.61	TSP WEAR
122	148	109	9	04H	0.45	TSP WEAR
123	100	25	21	TSC	12.75	LOOSE PART WEAR
124	102	25	6	TSC	12.11	LOOSE PART WEAR
125	138	119	11	TSH	0.29	LOOSE PART WEAR
126	138	119	12	TSH	1.12	LOOSE PART WEAR