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November 28, 2005

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Subject: Duke Energy Corporation
Catawba Nuclear Station, Unit 1
Docket Number 50-413
Steam Generator Outage Summary 180-Day Report for End of Cycle 15 Refueling Outage

Pursuant to Technical Specification 5.6.8, please find attached the subject report which provides the results of the steam generator inspection effort associated with the subject outage.

There are no regulatory commitments contained in this letter or its attachment.

If you have any questions concerning this material, please call L.J. Rudy at (803) 831-3084.

Very truly yours,

D.M. Jamil

LJR/s

Attachment

A001

Catawba Nuclear Station 20th Anniversary 1985-2005

xc (with attachment):

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Number Steam Generator Tubes Inspected
By Inspection Type
Catawba Unit 1 EOC15

Tech Spec 5.6.8a (Scope of Inspection):

Steam Generator	Inspection Type	Number of Tubes
1A	Bobbin	3761
	Top Of Tubesheet	1623
	Special Interest	25
	Plug	100% visual (8 tubes)
1B	Bobbin	3776
	Top Of Tubesheet	2648
	Special Interest	52
	Plug	No plugs
1C	Bobbin	3735
	Top Of Tubesheet	2556
	Special Interest	44
	Plug	100% visual (14 tubes)
1D	Bobbin	3753
	Top Of Tubesheet	1641
	Special Interest	22
	Plug	100% visual (4 tubes)

Tech Spec 5.6.8b (Active Degradation):

Active degradation defined as a combination of 10 or more new indications (≥20% through-wall) and previous indications that display growth rate ≥ 25% of the repair limit in one inspection-to inspection interval in any one SG. One or more new or previously identified indications (≥20% through-wall) which display a growth ≥ the repair limit in one inspection-to inspection interval or any crack indication.

No active degradation was identified during the unit 1 EOC15 inspection.

Tech Spec 5.6.8.c (NDE Techniques):

NDE techniques listed below are taken form the CNS 1EOC15 Degradation Assessment and represent techniques qualified for the CNS examination. The bobbin (B) and array (XP) were the only probes utilized during the inspection.

Mechanism	Location	Probe	ETSS
Wear		B PAN +Pt XP	96004.2 96911.1 96910.1 24044.1
MBM's		B	96001.1

Mechanism	Location	Probe	ETSS
OD IGA	Expansion Transitions	PAN +Pt	21401.1 21402.1 21409.1 21410.1
	Freespan & Non Dented TSP	B B PAN +Pt	96007.1 96008.1 21401.1 21402.1 21409.1 21410.1
	@ Dents(See ODSCC)		
PWSCC	Low Row U-bend	+Pt MR +Pt HF	96511.2 99997.1
	Low Row U-bend	XP	23513.2 23513.3
	Roll Transition (Includes Plugs)	PAN +Pt	21503.1 21504.1 20510.1 20511.1
	Expansion Transition	XP	20500.1 20500.2 20501.1 20501.2
	Dents	+Pt	96703.1
	Dents (<2.00 volts @ support structures)	XP	20502.1 20502.2

Mechanism	Location	Probe	ETSS
ODSCC	1. Roll Transition (Includes Plugs) 2. TSP 3. Tube Sheet	B PAN +Pt	96008.1 21401.1 21402.1 21409.1 21410.1
	1. Roll Transition 2. TSP 3. Tube Sheet	XP	20400.1 20400.2 20402.1 20402.2
	Freespan	B PAN	96007.1 21401.1 21402.1
		XP	20403.1 20403.2
	Freespan (cont)	+Pt	21409.1 21410.1
	Dents	+Pt +Pt	22841.3 22842.3
Pitting	Presence of copper	B	96005.1
		PAN	99998.1
Loose Parts/Internals		B	

Probe	Application
B (Bobbin)	Used to provide volumetric examination to meet ASME Code requirements
PAN (Rotating Pancake) (0.115" or 0.080") **+Pt** (Rotating Plus Point)	Used to provide: – supplemental information for indications reported with a bobbin probe – or qualified exams at specific areas of the tubing where bobbin is not considered a qualified technique for detection, i.e. roll transitions, low row u-bends, etc
XP (Array X-Probe)	Non-surface riding probe consisting of an array of coils arranged 360° around the probe body. Used to replace rotating coil exams.

Tech Spec 5.6.8.d (Location of Service Induced Indications)

A listing of all indications reported during the unit 1 EOC15 tube inspection is included as attachment 1.

Tech Spec 5.6.8 (Number of Tubes Plugged)

Steam Generator 1A Tubes Plugged EOC15 = 0 Total Tubes Plugged = 8 %Plugged= 0.12

Tube Row	Tube Column	Repair Method	Reason for plugging
N/A	N/A	N/A	No tube plugging required

Steam Generator 1B Tubes Plugged EOC15 = 0 Total Tubes Plugged = 0 %Plugged= 0

Tube Row	Tube Column	Repair Method	Reason for plugging
N/A	N/A	N/A	No tube plugging required

Steam Generator 1C Tubes Plugged EOC15 = 0 Total Tubes Plugged = 14 %Plugged= 0.21

Tube Row	Tube Column	Repair Method	Reason for plugging
N/A	N/A	N/A	N/A No tube plugging required

Steam Generator 1D Tubes Plugged EOC15 = 0 Total Tubes Plugged = 4 %Plugged= 0.06

Tube Row	Tube Column	Repair Method	Reason for plugging
N/A	N/A	N/A	No tube plugging required

Tech Spec 5.6.8.g (Results of Condition Monitoring, including tube pulls and In-situ test):

No tube pulls or in-situ testing were preformed during unit 1 EOC15.

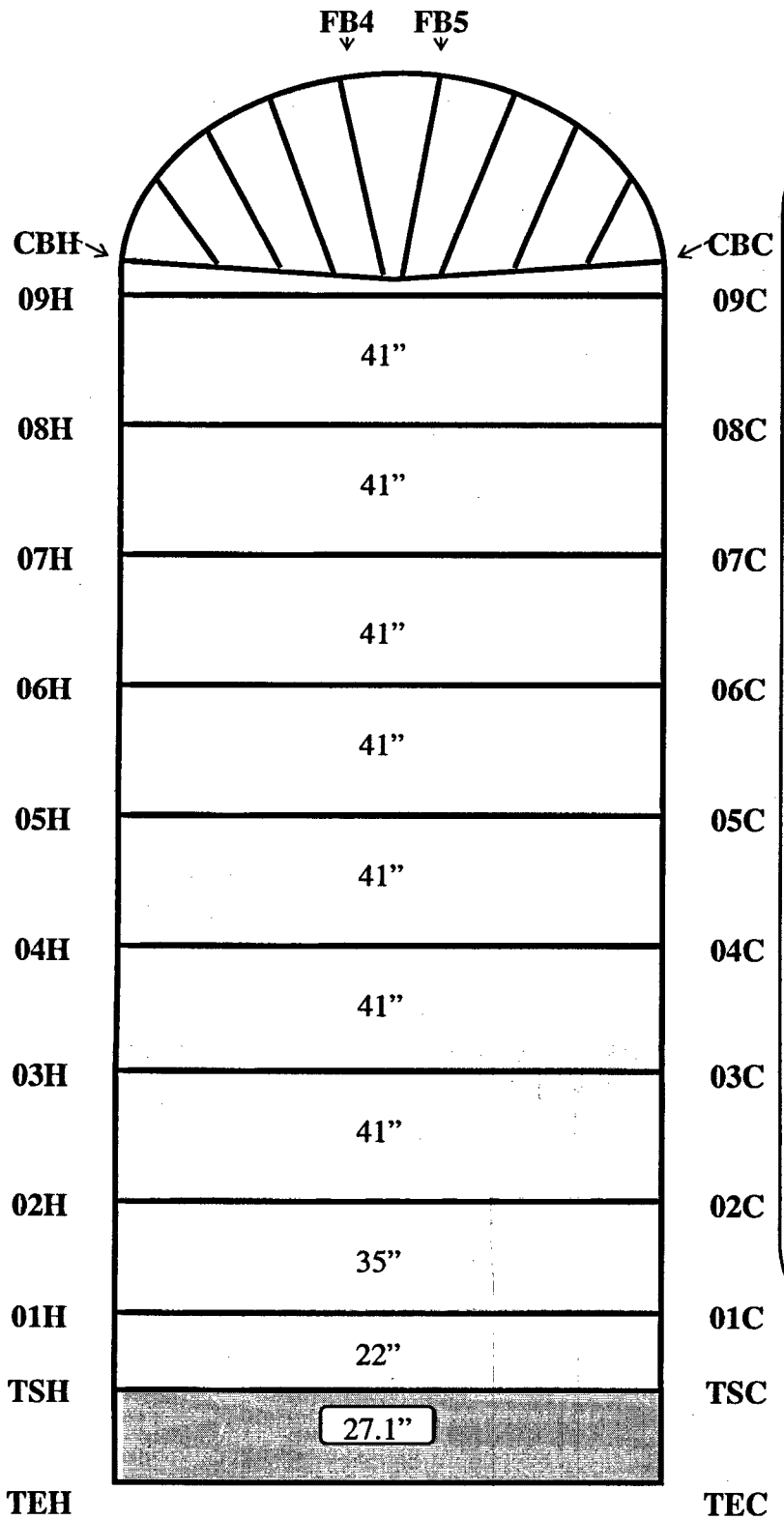
Condition monitoring and operational assessments of steam generator tubing at Catawba Unit 1 were performed. The observed severity of degradation at the end of cycle 15 was evaluated to determine if structural and leakage integrity requirements were maintained. The expected severity of tubing degradation at the next planned inspection was projected to determine if required structural and leakage integrity margins would be maintained during the next cycle of operation. The scope of this evaluation included the following forms of tubing degradation:

- Wear at Structures

Condition monitoring via analysis verified that deterministic structural margins were maintained during the last cycle of operation.

Bounding deterministic operational assessments were performed. All input was considered at 95th percentile bounding values. An evaluation of projected worst case EOC structural and leakage intergrity margins shows that full cycle operation is warranted through the next inspection planned for EOC 17.

Additional Information to assist with locations within the SG's.



CFR 80

Tube Information:

No. of Tubes	**6633**
Material:	**Inconel 690**
Nominal Dia.:	**0.688"**
Nominal Wall:	**0.040"**
Row 1 Radius:	**3.973"**
Straight Length:	**31.9'/32.7'**
Tube Pitch:	**.930"**

Tube Support Information

Type:	**Lattice**
Material	**410 Stainless**
Thickness:	
High:	**3.150"**
Med.:	**2.562"**
Low:	**1.000"**

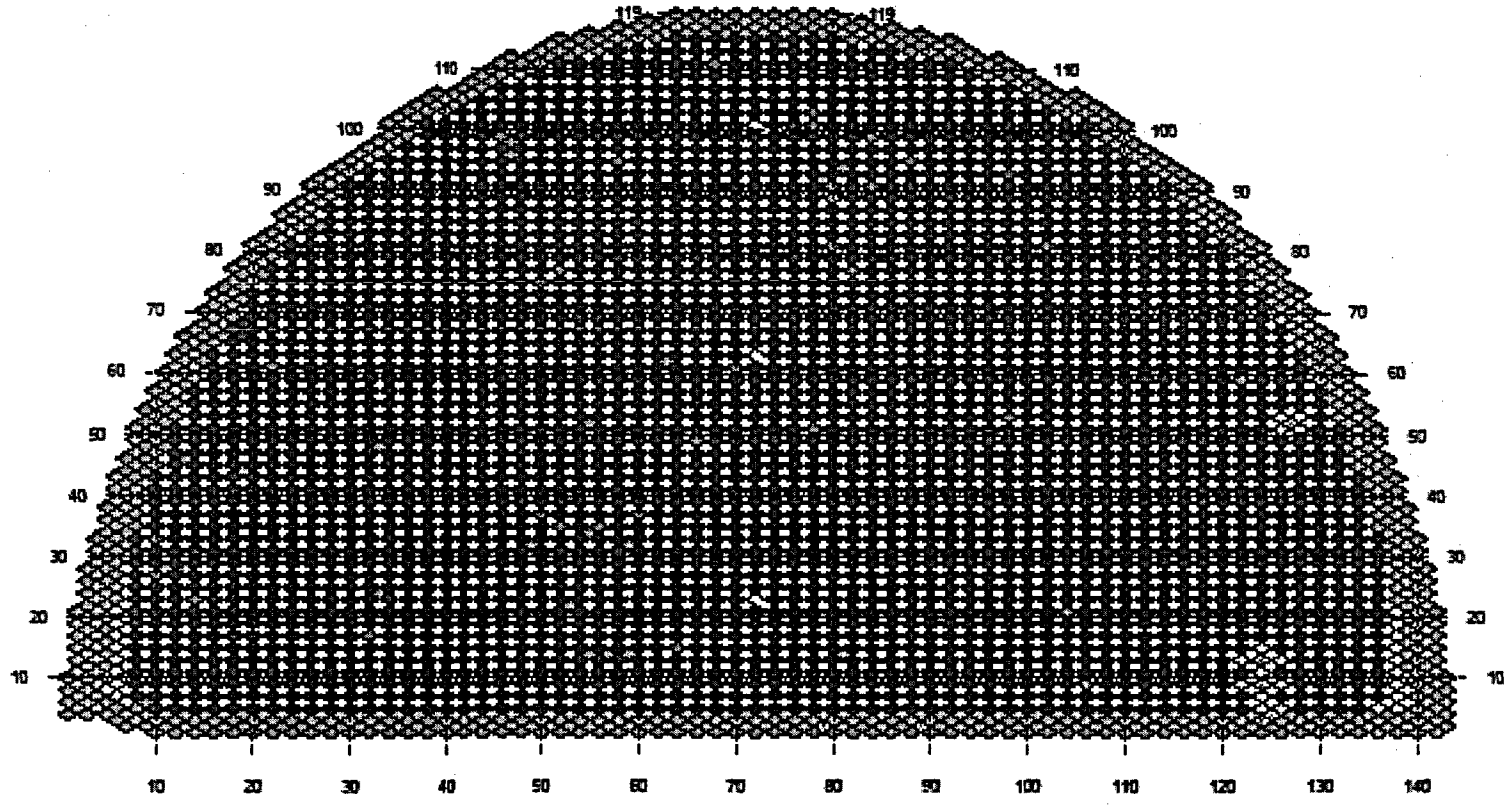
Connector Bar

Material:	**410 Stainless**

Fan Bars

Material:	**410 Stainless**
Thickness	**0.110"**
Width	**1.25"**

Typical Tube Sheet Layout:



Indication Codes

Bobbin Characterization Codes

#		CODE	DESCRIPTION
1		ADI	Absolute Drift Indication
2	*	AXI	Axial Indication
3		BLG	Bulge
4		BOR	Boron
5		CHT	Chatter
7		DNT	Dent
8		DWI	Dent With Indication
9		FC	Final Calibration
10		FCL	Final Calibration Late
11		ICR	Incomplete Roll
12		IC	Initial Calibration
13		IV	Independent Verification of tube identification
14	*	IDOK	Tube ID Verified; This code shall be used to identify tubes acquired more than once during the current outage. Use of this code requires tube to tube comparison or fingerprinting of the affected tube(s).
15		INF	Indication Not Found
16		INR	Indication Not Reportable
17		IRR	Irregular Roll
18	*	L3R	Level III Review
19		MSG	Analyst Message
20		NEX	No Expansion
21		NFC	No Final Calibration
22		NQI	Non-Quantifiable Indication
23		NSR	Needs SGME Review
24		OBS	Obstructed
25		OVR	Over Roll
26		OXP	Over Expansion
27		PID	Positive Identification
28	*	PLG	Plugged Tube
29		PLP	Possible Loose Parts
30		PVN	Permeability Variation
31		RBD	Retest - Bad Data
32		RFB	Retest - Fan Bar using a wear standard for sizing
33		RIC	Retest - Incomplete
34		RNC	Retest - Tube Number Check
35		ROB	Retest - Obstructed
36		RRC	Retest - Rotating Coil
37		RPD	Retest - Positive Identification
38		SAT	Satisfactory
39		SLG	Sludge
40		SKR	Skip Roll
41	*	WAR	Wear
42		WTG	Wetting/Leaking

- Denotes code to be used in the "UTIL 1" field

Array and Rotating Coil Codes

#		CODE	DESCRIPTION
1	*	AXI	Axial Indication
2		DNT	Dent
3	*	L3R	Level III Review
4		MAI	Multiple Axial Indication
5		MCI	Multiple Circumferential Indication
6		MMI	Mixed-Mode Indication
7		MSG	Analyst Message
8		MVI	Multiple Volumetric Indications
9		NDF	No Defect Found
10		OBS	Obstructed
11		PID	Positive Identification
12		PLP	Possible Loose Part
13		PVN	Permeability Variation
14		RBD	Retest - Bad Data
15		RIC	Retest – Incomplete
16		RNC	Retest - Tube Number Check
17		ROB	Retest – Obstructed
18		SAI	Single Axial Indication
19		SCI	Single Circumferential Indication
20		SVI	Single Volumetric Indication
21		VOL	Volumetric
22	*	WAR	Wear

* Denotes code to be used in the "UTIL 1" field.

Attachment 1

Reported Tube Indications

CNS 1EOC15

ATTACHMENT 1

Query Name : bobbin_query.qry

Query Title: Current bobbin non retest codes

Selected Outages/Scopes: 05/05 - EOC15 BOBBIN EXAM
Input Selected : All Tubes
Output File Selected :
Selected Indications : ADI,CHT,DNT,DPS,DWI,HNI,ICR,IRR,NEX,NQI,NQS,ODI,OVR,OXP,PLP,PVN,SKR,TWD,
Selected Probes : ALL
Selected Channels : ALL
Selected Cals : ALL
Selected Extent1 : ALL
Selected Extent2 : ALL
Selected Util 1 :
Selected Util 2 :
Selected Tube Heat :
TWD Range :
Volts Range :
Degrees Range :
Radius from Center Range :
Location Range :
Inspection Leg Queried : BOTH
Include In-Service or Out-Service Tubes : Both
Advanced User Query :

Current bobbin non retest codes

QUERY: bobbin_query

ROW	COL	VOLTS	DEG	CHN	IND	%TW	LOCATION		EXT	EXT	UTIL 1	UTIL 2	CAL #	LEG	PROBE
1	40	0.22	80	6	ADI	04C		+32.64	09C	TEC			4	COLD	540UL
4	35	1.00	60	6	HNI	08H		+26.49	09C	TEH			103	HOT	540UL
5	14	0.85	62	6	ADI	08H		+34.85	09C	TEH			105	HOT	540UL
9	26	0.29	83	6	ADI	04C		+23.87	09C	TEC			4	COLD	540UL
9	52	0.22	75	6	ADI	08C		+32.50	09C	TEC			4	COLD	540UL
14	81	0.26	79	6	HNI	03C		+25.46	TEC	TEH			68	HOT	540UL
15	64	0.21	156	1	HNI	07H		+15.35	TEC	TEH			54	HOT	540UL
17	32	0.21	163	1	HNI	04H		+21.72	TEC	TEH			38	HOT	540UL
20	91	0.15	153	1	HNI	02H		+7.13	TEC	TEH			68	HOT	540UL
22	53	0.47	80	6	HNI	02C		+3.48	TEC	TEH			52	HOT	540UL
		0.24	70	6	ADI	03C		+14.22	TEC	TEH			52	HOT	540UL
27	10	0.42	171	1	HNI	03H		+3.57	TEC	TEH			42	HOT	540UL
27	124	0.33	71	6	ADI	06C		+19.27	TEC	TEH			60	HOT	540UL
28	11	0.13	150	1	HNI	01H		+26.59	TEC	TEH			40	HOT	540UL
28	13	0.09	163	1	HNI	04H		+23.21	TEC	TEH			40	HOT	540UL
29	36	3.27	180	1	DNT	TSH		+2.53	TEC	TEH			38	HOT	540UL
30	51	0.53	71	6	ADI	FB3		+4.62	TEC	TEH			52	HOT	540UL
		0.26	69	6	HNI	03H		+36.67	TEC	TEH			52	HOT	540UL
32	49	0.21	70	6	HNI	02H		+27.39	TEC	TEH			52	HOT	540UL
		0.57	84	6	HNI	02H		+19.30	TEC	TEH			52	HOT	540UL
33	10	0.24	164	1	HNI	04C		+25.10	TEC	TEH			40	HOT	540UL
33	24	0.61	78	6	ADI	06C		+7.96	TEC	TEH			38	HOT	540UL
33	36	0.62	80	6	ADI	07C		+24.86	TEC	TEH			38	HOT	540UL
34	55	0.41	74	6	HNI	01H		+20.37	TEC	TEH			52	HOT	540UL
35	52	0.43	85	6	HNI	01H		+10.94	TEC	TEH			52	HOT	540UL
37	36	2.64	182	P1	DNT	FB3		+0.42	TEC	TEH			38	HOT	540UL
37	50	0.54	80	6	HNI	TSH		+12.02	TEC	TEH			54	HOT	540UL
37	58	0.36	85	6	ADI	01H		+30.43	TEC	TEH			50	HOT	540UL
37	60	0.27	75	6	HNI	06H		+25.50	TEC	TEH			50	HOT	540UL
39	28	0.59	172	1	NQI	09H		+8.42	TEC	TEH			36	HOT	540UL
40	53	0.64	85	6	HNI	06C		+21.34	TEC	TEH			52	HOT	540UL
43	46	2.31	183	1	DNT	CBH		+12.95	TEC	TEH			52	HOT	540UL
43	104	2.47	181	1	DNT	07C		+30.02	TEC	TEH			64	HOT	540UL
49	66	0.29	79	6	HNI	01C		+20.68	TEC	TEH			48	HOT	540UL
49	82	0.17	82	P2	TWD	6	FB2	+1.35	TEC	TEH	WAR		70	HOT	540UL
51	78	0.21	122	P1	HNI	01H		-1.65	TEC	TEH			68	HOT	540UL
52	55	0.16	161	1	HNI	02H		+8.37	TEC	TEH			48	HOT	540UL
		0.26	163	1	HNI	02H		+6.63	TEC	TEH			48	HOT	540UL
57	38	0.15	48	P2	TWD	5	FB3	+1.09	TEC	TEH	WAR		50	HOT	540UL
59	122	1.28	71	6	HNI	TSH		+6.19	TEC	TEH			60	HOT	540UL

Current bobbin non retest codes

QUERY: bobbin_query.qry

ROW	COL	VOLTS	DEG	CHN	IND	%TW	LOCATION		EXT	EXT	UTIL 1	UTIL 2	CAL #	LEG	PROBE
61	70	0.30	75	P2	TWD	13	FB4	+0.62	TEC	TEH	WAR		48	HOT	540UL
63	50	0.22	162	1	HNI		04C	+35.09	TEC	TEH			52	HOT	540UL
73	106	2.18	178	1	DNT		01H	+20.15	TEC	TEH			6	HOT	540UL
75	50	0.32	161	1	HNI		05H	+9.85	TEC	TEH			30	HOT	540UL
75	70	3.56	183	1	DNT		FB1	-2.79	TEC	TEH			16	HOT	540UL
77	82	0.29	99	P2	TWD	9	FB5	-0.68	TEC	TEH	WAR		12	HOT	540UL
77	90	0.26	99	P2	TWD	10	FB5	-0.64	TEC	TEH	WAR		10	HOT	540UL
81	80	0.26	107	P2	TWD	10	FB7	-0.67	TEC	TEH	WAR		10	HOT	540UL
84	27	0.93	78	6	HNI		FB4	+4.96	TEC	TEH			32	HOT	540UL
85	86	0.27	66	6	ADI		04H	+26.13	TEC	TEH			12	HOT	540UL
89	78	0.33	103	P2	TWD	12	FB5	-0.59	TEC	TEH	WAR		10	HOT	540UL
89	80	0.34	105	P2	TWD	13	FB5	-0.67	TEC	TEH	WAR		10	HOT	540UL
91	80	0.31	116	P2	TWD	10	FB6	+1.72	TEC	TEH	WAR		12	HOT	540UL
91	84	0.25	99	P2	TWD	9	FB4	-0.73	TEC	TEH	WAR		10	HOT	540UL
92	79	0.35	92	P2	TWD	13	FB4	-0.53	TEC	TEH	WAR		10	HOT	540UL
94	81	0.21	111	P2	TWD	8	FB5	+1.73	TEC	TEH	WAR		10	HOT	540UL
95	74	0.30	69	6	ADI		03H	+17.24	TEC	TEH			16	HOT	540UL
95	88	0.25	119	P2	TWD	8	FB4	-0.68	TEC	TEH	WAR		12	HOT	540UL
		0.33	58	6	ADI		02H	+6.31	TEC	TEH	CHG		12	HOT	540UL
96	47	0.70	82	6	HNI		02H	+16.53	TEC	TEH			28	HOT	540UL
96	109	0.20	101	P2	TWD	7	FB5	+1.26	TEC	TEH	WAR		58	HOT	540UL
99	46	0.20	72	6	HNI		08C	+20.96	TEC	TEH			28	HOT	540UL
99	72	3.12	182	P 1	DNT		FB6	-0.31	TEC	TEH			16	HOT	540UL
101	78	0.35	123	P2	TWD	13	FB4	-1.67	TEC	TEH	WAR		10	HOT	540UL
103	78	0.31	0	P2	TWD	10	FB5	-0.56	TEC	TEH	WAR		12	HOT	540UL
105	38	0.32	79	6	HNI		02H	+21.82	TEC	TEH			34	HOT	540UL
114	75	0.38	69	6	HNI		05H	+35.37	TEC	TEH			14	HOT	540UL

Total Tubes : 62
Total Records: 67

Query Name : array_query.qry

Query Title: Current array codes

Selected Outages/Scopes: 05/05 - EOC15 TTS Array Exam
05/05 - EOC15 Special Interest
Input Selected : All Tubes
Output File Selected :
Selected Indications : DNT,MAI,MCI,MMI,MVI,NQI,ODI,PLP,PVN,SAI,SCI,SVI,TWD,VOL,
Selected Probes : ALL
Selected Channels : ALL
Selected Cals : ALL
Selected Extent1 : ALL
Selected Extent2 : ALL
Selected Util 1 :
Selected Util 2 :
Selected Tube Heat :
TWD Range :
Volts Range :
Degrees Range :
Radius from Center Range :
Location Range :
Inspection Leg Queried : BOTH
Include In-Service or Out-Service Tubes : Both
Advanced User Query :

Current array codes

QUERY: array_query

ROW	COL	VOLTS	DEG	CHN	IND	%TW	LOCATION		EXT	EXT	UTIL 1	UTIL 2	CAL #	LEG	PROBE
9	26	0.26	96	82	VOL		04C	+22.36	05C	04C			3	COLD	540XP
39	28	1.01	86	130	VOL		09H	+8.66	CBH	09H			35	HOT	540XP
29	36	3.30	189	6	DNT		TSH	+2.57	01H	TSH			37	HOT	540XP
37	36	1.87	188	42	DNT		FB3	+0.42	FB3	FB3			37	HOT	540XP
1	40	0.43	116	86	VOL		04C	+32.12	05C	04C			3	COLD	540XP
43	46	1.72	188	18	DNT		CBH	+12.83	FB3	CBH			51	HOT	540XP
30	51	1.16	24	10	VOL		FB3	+5.42	FB4	FB3			51	HOT	540XP
37	58	0.31	87	78	VOL		01H	+30.09	02H	01H			49	HOT	540XP
99	72	1.72	12	138	DNT		FB6	-0.31	FB6	FB6			15	HOT	540XP
95	74	0.23	107	102	VOL		03H	+17.23	04H	03H			15	HOT	540XP
49	82	0.35	87	Q9	VOL		FB2	+0.98	FB2	FB2	WAR		69	HOT	540XP
85	86	0.24	57	110	VOL		04H	+25.97	04H	05H			11	HOT	540XP
95	88	0.51	76	Q9	VOL		FB4	+0.00	09C	09H	WAR		11	HOT	540XP
43	104	3.57	188	90	DNT		07C	+29.77	07C	08C			63	HOT	540XP

Total Tubes : 14
Total Records: 14

Query Name : bobbin_query.qry

Query Title: Current bobbin non retest codes

Selected Outages/Scopes: 05/05 - EOC15 BOBBIN EXAM
Input Selected : All Tubes
Output File Selected :
Selected Indications : ADI,CHT,DNT,DPS,DWI,HNI,ICR,NEX,NQI,NQS,NSR,ODI,OVR,OXP,PLP,PVN,TWD,
Selected Probes : ALL
Selected Channels : ALL
Selected Cals : ALL
Selected Extent1 : ALL
Selected Extent2 : ALL
Selected Util 1 :
Selected Util 2 :
Selected Tube Heat :
TWD Range :
Volts Range :
Degrees Range :
Radius from Center Range :
Location Range :
Inspection Leg Queried : BOTH
Include In-Service or Out-Service Tubes : Both
Advanced User Query :

Current bobbin non retest codes

QUERY: bobbin_query

ROW	COL	VOLTS	DEG	CHN	IND	%TW	LOCATION		EXT	EXT	UTIL 1	UTIL 2	CAL #	LEG	PROBE
1	54	1.75	52	1	OVR	TSC		+0.32	09C	TEC			10	COLD	540UL
12	103	0.41	81	6	HNI	TSH		+3.73	09C	TEH			69	HOT	540UL
13	28	0.41	82	6	HNI	02C		+28.06	TEC	TEH			40	HOT	540UL
13	38	0.37	168	1	NQI	01C		+25.07	TEC	TEH			34	HOT	540UL
16	39	0.42	167	1	HNI	01C		+18.57	TEC	TEH			36	HOT	540UL
17	10	0.58	82	6	ADI	01C		+3.14	TEC	TEH			40	HOT	540UL
17	22	0.35	83	6	ADI	01C		+6.27	TEC	TEH			40	HOT	540UL
19	72	0.95	63	6	HNI	CBH		+6.79	TEC	TEH			62	HOT	540UL
20	33	0.37	75	6	ADI	04C		+14.33	TEC	TEH			34	HOT	540UL
22	25	0.23	75	6	ADI	03C		+31.58	TEC	TEH			36	HOT	540UL
23	36	0.25	82	6	ADI	02H		+6.73	TEC	TEH			34	HOT	540UL
25	24	0.21	70	6	HNI	07H		+35.57	TEC	TEH			38	HOT	540UL
		0.18	76	6	HNI	07H		+23.76	TEC	TEH			38	HOT	540UL
25	106	0.31	80	6	ADI	02C		+34.93	TEC	TEH			20	HOT	540UL
28	13	0.27	80	6	ADI	02H		+25.64	TEC	TEH			38	HOT	540UL
28	141	0.08	172	1	NQI	04H		+23.52	TEC	TEH			66	HOT	540UL
33	54	0.24	82	6	HNI	03H		+25.83	TEC	TEH			34	HOT	540UL
33	140	0.44	82	6	ADI	02C		+7.71	TEC	TEH			66	HOT	540UL
34	13	0.25	72	6	ADI	TSH		+12.00	TEC	TEH			40	HOT	540UL
35	136	7.18	182	P1	DNT	FB6		+2.29	TEC	TEH			58	HOT	540UL
37	24	0.33	162	1	HNI	03C		+23.56	TEC	TEH			38	HOT	540UL
39	40	0.20	82	6	ADI	01H		+22.61	TEC	TEH			34	HOT	540UL
39	48	0.98	85	6	ADI	01C		+20.56	TEC	TEH			32	HOT	540UL
39	58	0.45	81	6	HNI	01H		+20.31	TEC	TEH			66	HOT	540UL
39	88	0.21	76	6	ADI	08C		+8.79	TEC	TEH			16	HOT	540UL
40	65	0.39	82	6	ADI	01H		+20.09	TEC	TEH			66	HOT	540UL
41	20	0.34	82	6	ADI	04C		+6.37	TEC	TEH			40	HOT	540UL
41	58	0.26	83	6	ADI	01H		+21.24	TEC	TEH			68	HOT	540UL
41	60	0.38	78	6	HNI	01H		+14.09	TEC	TEH			68	HOT	540UL
45	60	0.32	80	6	ADI	06C		+24.01	TEC	TEH			68	HOT	540UL
45	66	0.26	166	1	HNI	02H		+21.88	TEC	TEH			66	HOT	540UL
47	58	0.29	74	6	ADI	03C		+33.47	TEC	TEH			66	HOT	540UL
49	100	0.33	73	6	HNI	01H		+25.17	TEC	TEH			20	HOT	540UL
50	83	0.28	75	6	ADI	05C		+9.88	TEC	TEH	IV		14	HOT	540UL
52	63	0.39	75	6	ADI	02C		+15.69	TEC	TEH			66	HOT	540UL
59	92	0.33	80	6	ADI	04C		+27.19	TEC	TEH			16	HOT	540UL
60	11	0.24	79	6	ADI	04C		+20.76	TEC	TEH			38	HOT	540UL
61	96	0.35	71	6	HNI	02H		+25.13	TEC	TEH			18	HOT	540UL
63	60	0.12	118	P1	HNI	02C		+0.22	TEC	TEH			66	HOT	540UL

Current bobbin non retest codes

QUERY: bobbin_query.qry

ROW	COL	VOLTS	DEG	CHN	IND	%TW	LOCATION		EXT	EXT	UTIL 1	UTIL 2	CAL #	LEG	PROBE
64	35	0.26	71	6	ADI		01H	+24.01	TEC	TEH			34	HOT	540UL
66	73	0.31	96	P2	TWD	10	FB5	+0.63	TEC	TEH	WAR		10	HOT	540UL
69	70	0.44	94	P2	TWD	14	FB4	+1.38	TEC	TEH	WAR		30	HOT	540UL
69	72	0.29	79	6	ADI		07C	+27.21	TEC	TEH			30	HOT	540UL
69	104	0.23	159	1	NQI		08H	+3.69	TEC	TEH			14	HOT	540UL
		0.21	81	6	HNI		03H	+28.52	TEC	TEH			14	HOT	540UL
74	83	0.36	116	P2	TWD	11	FB4	+1.26	TEC	TEH	WAR		62	HOT	540UL
77	106	0.41	81	6	ADI		07C	+16.46	TEC	TEH			14	HOT	540UL
79	24	0.14	148	1	HNI		FB1	+10.83	TEC	TEH			42	HOT	540UL
79	96	0.67	168	8	PLP		TSH	+0.68	TEC	TEH			60	HOT	540UL
80	105	0.62	110	6	HNI		07H	+35.62	TEC	TEH			14	HOT	540UL
		0.16	166	1	HNI		08H	+3.93	TEC	TEH	IV		14	HOT	540UL
82	67	0.17	166	1	NQI		05H	+10.21	TEC	TEH			32	HOT	540UL
82	75	0.33	99	P2	TWD	10	FB4	-1.10	TEC	TEH	WAR		58	HOT	540UL
82	83	0.37	81	P2	TWD	11	FB4	+1.16	TEC	TEH	WAR		62	HOT	540UL
84	115	0.80	48	7	PLP		TSH	+3.50	TEC	TEH			46	HOT	540UL
85	98	0.29	82	6	HNI		01H	+15.57	TEC	TEH			10	HOT	540UL
86	83	0.43	87	P2	TWD	13	FB5	+1.04	TEC	TEH	WAR		62	HOT	540UL
		0.39	85	P2	TWD	12	FB4	+1.29	TEC	TEH	WAR		62	HOT	540UL
86	115	0.45	51	7	PLP		TSH	+3.51	TEC	TEH			48	HOT	540UL
87	36	1.33	59	6	HNI		TSH	+3.77	TEC	TEH			42	HOT	540UL
87	64	0.75	66	6	ADI		02C	+7.00	TEC	TEH			32	HOT	540UL
89	60	0.29	86	P2	TWD	10	FB6	-1.23	TEC	TEH	WAR		28	HOT	540UL
91	70	0.28	74	P2	TWD	10	FB6	+1.37	TEC	TEH	WAR		32	HOT	540UL
94	95	0.29	169	1	NQI		06H	+7.87	TEC	TEH			10	HOT	540UL
95	64	0.24	123	P2	TWD	9	FB5	-1.13	TEC	TEH	WAR		32	HOT	540UL
		0.36	77	6	HNI		02H	+19.43	TEC	TEH			32	HOT	540UL
97	70	0.18	106	P2	TWD	6	FB8	+1.98	TEC	TEH	WAR		30	HOT	540UL
		0.39	102	P2	TWD	12	FB6	-1.18	TEC	TEH	WAR		30	HOT	540UL
		0.61	100	P2	TWD	18	FB5	-1.28	TEC	TEH	WAR		30	HOT	540UL
98	83	0.57	85	P2	TWD	17	FB5	+1.04	TEC	TEH	WAR		62	HOT	540UL
99	100	1.31	154	8	PLP		TSH	+0.69	TEC	TEH			14	HOT	540UL
100	99	0.64	149	8	PLP		TSH	+0.77	TEC	TEH			14	HOT	540UL
102	39	0.73	84	6	HNI		01H	+19.01	TEC	TEH			22	HOT	540UL
103	70	0.28	83	P2	TWD	10	FB4	-1.01	TEC	TEH	WAR		32	HOT	540UL
103	78	0.40	78	6	HNI		05H	+37.49	TEC	TEH			60	HOT	540UL
105	104	0.57	47	7	PLP		TSH	+13.24	TEC	TEH	LAR		14	HOT	540UL
106	103	0.13	157	1	NQI		TSH	+6.93	TEC	TEH			14	HOT	540UL
		0.28	79	6	ADI		01C	+29.88	TEC	TEH	IV		14	HOT	540UL
		0.50	55	7	PLP		TSH	+13.37	TEC	TEH			14	HOT	540UL
107	88	0.25	85	6	HNI		03H	+8.82	TEC	TEH			8	HOT	540UL
111	70	0.33	82	6	ADI		05H	+4.63	TEC	TEH			32	HOT	540UL

Current bobbin non retest codes

QUERY: bobbin_query.qry

ROW	COL	VOLTS	DEG	CHN	IND	%TW	LOCATION	EXT	EXT	UTIL 1	UTIL 2	CAL #	LEG	PROBE
119	74	2.57	179	1	DNT	TSC	+2.18	TEC	TEH			60	HOT	540UL
119	80	4.32	183	1	DNT	FB4	+6.41	TEC	TEH			64	HOT	540UL

Total Tubes : 74
Total Records: 83

Query Name : array_query.qry

Query Title: Current array codes

Selected Outages/Scopes: 05/05 - EOC15 TTS Array Exam
05/05 - EOC15 Special Interest
05/05 - EOC15 SSI PLP bounding
Input Selected : All Tubes
Output File Selected :
Selected Indications : DNT,MAI,MCI,MMI,MVI,NQI,ODI,PLP,PVN,SAI,SCI,SVI,TWD,VOL,
Selected Probes : ALL
Selected Channels : ALL
Selected Cals : ALL
Selected Extent1 : ALL
Selected Extent2 : ALL
Selected Util 1 :
Selected Util 2 :
Selected Tube Heat :
TWD Range :
Volts Range :
Degrees Range :
Radius from Center Range :
Location Range :
Inspection Leg Queried : BOTH
Include In-Service or Out-Service Tubes : Both
Advanced User Query :

PG 10 of 25

Current array codes

QUERY: array_query

ROW	COL	VOLTS	DEG	CHN	IND	%TW	LOCATION		EXT	EXT	UTIL 1	UTIL 2	CAL #	LEG	PROBE
17	10	0.45	101	86	VOL		01C	+3.12	01C	02C			39	HOT	540XP
17	22	0.29	102	38	VOL		01C	+6.00	01C	02C			39	HOT	540XP
22	25	0.27	97	114	VOL		03C	+31.73	03C	04C			35	HOT	540XP
20	33	0.38	80	18	VOL		04C	+14.51	04C	05C			33	HOT	540XP
13	38	0.56	107	94	VOL		01C	+25.04	01C	02C			33	HOT	540XP
70	45	5.92	87	12	PLP		TSH	+0.51	TSH	TEH	LAR		21	HOT	540XP
39	48	0.34	116	46	VOL		01C	+20.94	01C	02C			31	HOT	540XP
45	60	0.44	107	26	VOL		06C	+24.42	06C	07C			67	HOT	540XP
82	67	0.35	86	162	VOL		05H	+10.43	06H	05H			31	HOT	540XP
69	70	0.49	51	Q4	VOL		FB4	+1.38	FB4	FB4	WAR		29	HOT	540XP
91	70	0.42	74	Q11	VOL		FB6	+1.76	FB6	FB6	WAR		31	HOT	540XP
97	70	0.55	96	Q11	VOL		FB6	-1.18	FB6	FB6	WAR		29	HOT	540XP
		0.30	103	Q4	VOL		FB8	+1.91	FB8	FB8	WAR		29	HOT	540XP
		0.75	87	Q11	VOL		FB5	-1.28	FB5	FB5	WAR		29	HOT	540XP
103	70	1.31	62	102	VOL		FB4	-1.40	FB4	FB4	WAR		31	HOT	540XP
111	70	0.35	102	102	VOL		05H	+5.47	06H	05H			31	HOT	540XP
		0.20	113	114	VOL		05H	+4.33	06H	05H			31	HOT	540XP
69	72	0.22	91	30	VOL		07C	+27.09	07C	08C			29	HOT	540XP
119	74	2.87	175	22	DNT		TSC	+1.90	TSC	01C			59	HOT	540XP
82	75	0.43	58	Q3	VOL		FB4	-1.35	FB4	FB4	WAR		57	HOT	540XP
119	80	4.39	177	62	DNT		FB4	+6.22	FB5	FB4			63	HOT	540XP
74	83	0.76	88	P19	VOL		FB4	+1.65	FB4	FB4	WAR		61	HOT	540XP
82	83	0.43	67	Q10	VOL		FB4	+0.63	FB4	FB4	WAR		61	HOT	540XP
86	83	0.57	109	Q10	VOL		FB4	+0.71	FB4	FB4	WAR		61	HOT	540XP
		0.48	68	Q10	VOL		FB5	+1.15	FB5	FB5	WAR		61	HOT	540XP
98	83	0.61	59	Q10	VOL		FB5	+1.18	FB5	FB5	WAR		61	HOT	540XP
48	85	13.09	99	132	PLP		TSH	+0.50	TSH	TEH	LAR		15	HOT	540XP
61	88	11.40	106	140	PLP		TSH	+0.35	TSH	TEH	LAR		15	HOT	540XP
63	88	12.84	96	104	PLP		TSH	+0.13	01H	TEH	LAR		15	HOT	540XP
44	95	6.64	100	164	PLP		TSH	+0.20	TSH	TEH	LAR		17	HOT	540XP
46	95	3.08	68	144	PLP		TSH	+0.35	01H	TEH	LAR		19	HOT	540XP
80	95	6.09	109	60	PLP		TSH	+0.74	TSH	TEH	LAR		9	HOT	540XP
86	95	5.10	87	168	PLP		TSH	+0.40	TSH	TEH	LAR		9	HOT	540XP
94	95	0.57	109	94	VOL		06H	+7.93	07H	06H			9	HOT	540XP
79	96	9.56	128	96	PLP		TSH	+0.77	01H	TEH	LAR		59	HOT	540XP
87	96	8.52	109	132	PLP		TSH	+0.45	01H	TEH	LAR		57	HOT	540XP
111	96	3.51	84	164	PLP		TSH	+0.23	01H	TEH	LAR		9	HOT	540XP
112	97	6.82	108	128	PLP		TSH	+0.42	01H	TEH	LAR		9	HOT	540XP
109	98	14.39	107	140	PLP		TSH	+0.44	01H	TEH	LAR		9	HOT	540XP
100	99	10.38	104	56	PLP		TSH	+0.79	01H	TEH	LAR		13	HOT	540XP

PG 11 of 25

Current array codes

QUERY: array_query.qry

ROW	COL	VOLTS	DEG	CHN	IND	%TW	LOCATION		EXT	EXT	UTIL 1	UTIL 2	CAL #	LEG	PROBE
110	99	18.79	110	8	PLP	TSH		+0.47	01H	TEH	LAR		13	HOT	540XP
99	100	11.52	114	72	PLP	TSH		+0.88	TSH	TEH	LAR		13	HOT	540XP
101	100	11.69	104	80	PLP	TSH		+0.42	TSH	TEH	LAR		13	HOT	540XP
105	102	9.85	123	144	PLP	TSH		+0.54	01H	TEH	LAR		13	HOT	540XP
107	102	8.98	123	104	PLP	TSH		+0.52	01H	TEH	LAR		13	HOT	540XP
106	103	10.89	126	32	PLP	TSH		+13.54	01H	TEH	LAR		13	HOT	540XP
		0.20	95	30	VOL	TSH		+7.17	01H	TSH			13	HOT	540XP
69	104	0.51	105	114	VOL	08H		+3.81	09H	08H			13	HOT	540XP
105	104	12.04	116	44	PLP	TSH		+13.61	01H	TEH	LAR		13	HOT	540XP
		10.93	121	44	PLP	TSH		+13.58	01H	TSH			13	HOT	540XP
25	106	0.48	82	30	VOL	02C		+34.31	02C	03C			19	HOT	540XP
84	115	15.34	117	108	PLP	TSH		+3.79	01H	TEH	LAR		45	HOT	540XP
86	115	12.42	116	104	PLP	TSH		+6.78	TSH	TEH	LAR		47	HOT	540XP
15	128	9.82	101	108	PLP	TSH		+0.21	TSH	TEH	LAR		53	HOT	540XP
33	140	0.39	77	46	VOL	02C		+7.94	02C	03C			65	HOT	540XP
28	141	0.29	101	46	VOL	04H		+23.36	05H	04H			65	HOT	540XP

Total Tubes : 50
Total Records: 56

Query Name : bobbin_query.qry

Query Title: Current bobbin non retest codes

Selected Outages/Scopes: 05/05 - EOC15 BOBBIN EXAM
Input Selected : All Tubes
Output File Selected :
Selected Indications : ADI,CHT,DNT,DPS,DWI,HNI,ICR,NEX,NQI,NQS,ODI,OXP,PLP,PVN,TWD,
Selected Probes : ALL
Selected Channels : ALL
Selected Cals : ALL
Selected Extent1 : ALL
Selected Extent2 : ALL
Selected Util 1 :
Selected Util 2 :
Selected Tube Heat :
TWD Range :
Volts Range :
Degrees Range :
Radius from Center Range :
Location Range :
Inspection Leg Queried : BOTH
Include In-Service or Out-Service Tubes : Both
Advanced User Query :

Current bobbin non retest codes

QUERY: bobbin_query

ROW	COL	VOLTS	DEG	CHN	IND	%TW	LOCATION		EXT	EXT	UTIL 1	UTIL 2	CAL #	LEG	PROBE
1	70	0.33	164	1	NQI	TSC		+1.53	09C	TEC			4	COLD	540UL
2	67	0.24	157	1	HNI	TSC		+1.39	09C	TEC			4	COLD	540UL
3	66	0.09	156	1	NQI	TSC		+1.93	09C	TEC			2	COLD	540UL
5	54	2.68	12	1	HNI	TSH		+0.87	09C	TEH			85	HOT	540UL
5	132	0.90	85	6	HNI	05C		+27.07	09C	TEC			6	COLD	540UL
7	50	2.77	183	P1	DNT	09H		-0.49	09C	TEH			85	HOT	540UL
19	34	0.15	164	1	HNI	02H		+29.64	TEC	TEH			26	HOT	540UL
21	66	0.35	170	1	HNI	09H		-2.99	TEC	TEH			82	HOT	540UL
23	4	0.60	185	8	PLP	TSH		+1.34	TEC	TEH			82	HOT	540UL
24	5	0.32	69	7	PLP	TSH		+1.44	01H	TEH			62	HOT	540UL
		0.27	50	7	PLP	TSH		+0.76	TEC	TEH	LAR		30	HOT	540UL
25	4	0.33	192	8	PLP	TSH		+0.50	TEC	TEH			30	HOT	540UL
27	10	6.01	10	1	NQI	TSC		+0.92	TEC	TEH			32	HOT	540UL
29	10	3.17	11	1	HNI	TSC		+0.95	TEC	TEH			30	HOT	540UL
31	10	3.53	11	1	NQI	TSC		+0.95	TEC	TEH			32	HOT	540UL
34	85	1.11	53	6	HNI	08C		+10.92	TEC	TEH			80	HOT	540UL
43	10	0.80	178	8	PLP	TSH		+1.88	TEC	TEH			32	HOT	540UL
		0.53	188	8	PLP	TSH		+0.73	TEC	TEH			32	HOT	540UL
43	138	2.23	177	1	DNT	03H		+11.52	TEC	TEH			70	HOT	540UL
44	11	0.92	175	8	PLP	TSH		+1.75	TEC	TEH			30	HOT	540UL
46	7	0.12	158	1	NQI	TSH		+9.35	TEC	TEH			30	HOT	540UL
46	9	1.03	62	6	HNI	01C		+28.78	TEC	TEH			30	HOT	540UL
52	95	0.54	86	6	ADI	02C		+31.45	TEC	TEH			72	HOT	540UL
54	19	0.70	87	6	HNI	02H		+23.35	TEC	TEH			26	HOT	540UL
59	122	0.18	75	6	ADI	02H		+4.84	TEC	TEH			58	HOT	540UL
63	44	0.17	99	P2	TWD	5	FB4	-1.72	TEC	TEH	WAR		30	HOT	540UL
67	88	1.11	82	6	HNI		07C	+24.41	TEC	TEH			6	HOT	540UL
		0.38	162	1	HNI		07C	+29.45	TEC	TEH			6	HOT	540UL
		0.42	164	1	HNI		07C	+24.70	TEC	TEH			6	HOT	540UL
70	55	0.30	72	P2	TWD	9	FB5	-1.19	TEC	TEH	WAR		14	HOT	540UL
72	23	0.24	82	6	HNI		01C	+15.54	TEC	TEH			24	HOT	540UL
72	61	0.45	0	P2	TWD	12	FB5	+1.59	TEC	TEH	WAR		10	HOT	540UL
73	62	0.17	0	P2	TWD	6	FB6	-0.69	TEC	TEH	WAR		12	HOT	540UL
74	65	0.20	0	P2	TWD	5	FB6	-1.94	TEC	TEH	WAR		10	HOT	540UL
		0.23	0	P2	TWD	6	FB5	+1.54	TEC	TEH	WAR		10	HOT	540UL
		0.18	0	P2	TWD	5	FB4	+0.62	TEC	TEH	WAR		10	HOT	540UL
74	87	0.44	0	P2	TWD	12	FB4	-1.77	TEC	TEH	WAR		6	HOT	540UL
75	60	0.50	82	P2	TWD	14	FB4	-1.13	TEC	TEH	WAR		14	HOT	540UL
		0.27	107	P2	TWD	8	FB6	-0.70	TEC	TEH	WAR		14	HOT	540UL
75	62	0.61		P2	TWD	15	FB4	-0.67	TEC	TEH	WAR		10	HOT	540UL
75	76	0.60		P2	TWD	16	FB5	+1.24	TEC	TEH	WAR		6	HOT	540UL
76	59	0.23	0	P2	TWD	8	FB6	-1.76	TEC	TEH	WAR		16	HOT	540UL

Current bobbin non retest codes

QUERY: bobbin_query.qry

ROW	COL	VOLTS	DEG	CHN	IND	%TW	LOCATION		EXT	EXT	UTIL 1	UTIL 2	CAL #	LEG	PROBE
76	61	0.51		P2	TWD	13	FB5	+1.59	TEC	TEH	WAR		10	HOT	540UL
77	68	0.23	0	P2	TWD	6	FB6	-0.59	TEC	TEH	WAR		10	HOT	540UL
79	34	0.45	85	6	HNI		02H	+26.96	TEC	TEH			22	HOT	540UL
79	60	0.28	103	P2	TWD	8	FB4	-0.89	TEC	TEH	WAR		14	HOT	540UL
79	62	0.31	0	P2	TWD	8	FB5	+0.68	TEC	TEH	WAR		10	HOT	540UL
		0.71	0	P2	TWD	17	FB4	-1.24	TEC	TEH	WAR		10	HOT	540UL
79	66	0.16	0	P2	TWD	4	FB8	+0.81	TEC	TEH	WAR		10	HOT	540UL
79	80	0.18	0	P2	TWD	6	FB4	+0.63	TEC	TEH	WAR		8	HOT	540UL
79	86	0.26	0	P2	TWD	9	FB6	-0.49	TEC	TEH	WAR		8	HOT	540UL
		0.34	0	P2	TWD	11	FB5	-0.87	TEC	TEH	WAR		8	HOT	540UL
80	59	0.25	0	P2	TWD	9	FB5	+1.71	TEC	TEH	WAR		16	HOT	540UL
80	81	0.39	0	P2	TWD	11	FB4	-1.11	TEC	TEH	WAR		6	HOT	540UL
83	76	1.02		P2	TWD	23	FB5	-0.60	TEC	TEH	WAR		6	HOT	540UL
85	62	0.20	0	P2	TWD	7	FB5	-0.69	TEC	TEH	WAR		12	HOT	540UL
85	64	0.31	0	P2	TWD	8	FB5	-0.65	TEC	TEH	WAR		10	HOT	540UL
85	76	0.91	0	P2	TWD	25	FB5	-1.15	TEC	TEH	WAR		8	HOT	540UL
86	59	0.28	78	P2	TWD	8	FB4	+1.73	TEC	TEH	WAR		14	HOT	540UL
86	61	0.52	0	P2	TWD	13	FB5	-0.59	TEC	TEH	WAR		10	HOT	540UL
		0.27	0	P2	TWD	7	FB4	-0.67	TEC	TEH	WAR		10	HOT	540UL
86	77	0.34	0	P2	TWD	11	FB8	+0.69	TEC	TEH	WAR		8	HOT	540UL
90	87	0.51	0	P2	TWD	14	FB5	+1.66	TEC	TEH	WAR		6	HOT	540UL
90	115	0.34	89	6	HNI		02H	+13.81	TEC	TEH			40	HOT	540UL
91	40	1.00	10	1	HNI		02C	+4.65	TEC	TEH			18	HOT	540UL
91	62	0.42	0	P2	TWD	11	FB5	+0.62	TEC	TEH	WAR		10	HOT	540UL
		0.38	0	P2	TWD	10	FB5	-0.67	TEC	TEH	WAR		10	HOT	540UL
		0.24	0	P2	TWD	6	FB4	+0.59	TEC	TEH	WAR		10	HOT	540UL
92	87	0.42	0	P2	TWD	14	FB5	-1.67	TEC	TEH	WAR		8	HOT	540UL
94	63	0.25	0	P2	TWD	7	FB6	-1.70	TEC	TEH	WAR		10	HOT	540UL
96	87	0.38	0	P2	TWD	11	FB5	+1.63	TEC	TEH	WAR		6	HOT	540UL
		0.28	0	P2	TWD	8	FB4	+1.61	TEC	TEH	WAR		6	HOT	540UL
97	86	0.31	0	P2	TWD	9	FB6	-0.63	TEC	TEH	WAR		6	HOT	540UL
98	77	0.62	0	P2	TWD	19	FB5	-1.12	TEC	TEH	WAR		8	HOT	540UL
98	85	0.22	0	P2	TWD	6	FB5	-1.76	TEC	TEH	WAR		6	HOT	540UL
		0.21	0	P2	TWD	6	FB4	+1.87	TEC	TEH	WAR		6	HOT	540UL
		0.17	0	P2	TWD	5	FB3	+1.85	TEC	TEH	WAR		6	HOT	540UL
98	87	0.35	0	P2	TWD	12	FB6	-1.61	TEC	TEH	WAR		8	HOT	540UL
		0.34	0	P2	TWD	11	FB5	-1.53	TEC	TEH	WAR		8	HOT	540UL
99	68	0.15	0	P2	TWD	5	FB7	-0.64	TEC	TEH	WAR		12	HOT	540UL
100	49	0.62	14	1	HNI		TSH	+0.85	TEC	TEH			14	HOT	540UL
		0.40	77	6	ADI		04H	+8.04	TEC	TEH			14	HOT	540UL
100	87	0.46	0	P2	TWD	13	FB4	+1.66	TEC	TEH	WAR		6	HOT	540UL
101	78	0.51		P2	TWD	14	FB5	-1.68	TEC	TEH	WAR		6	HOT	540UL
		0.49		P2	TWD	13	FB4	+1.66	TEC	TEH	WAR		6	HOT	540UL
		0.42		P2	TWD	12	FB4	-0.71	TEC	TEH	WAR		6	HOT	540UL

Current bobbin non retest codes

QUERY: bobbin_query.qry

ROW	COL	VOLTS	DEG	CHN	IND	%TW	LOCATION		EXT	EXT	UTIL 1	UTIL 2	CAL #	LEG	PROBE
		0.42		P2	TWD	12	FB4	-1.68	TEC	TEH	WAR		6	HOT	540UL
102	77	0.51	0	P2	TWD	16	FB7	-1.04	TEC	TEH	WAR		8	HOT	540UL
		0.52	0	P2	TWD	16	FB5	-1.15	TEC	TEH	WAR		8	HOT	540UL
		0.75	0	P2	TWD	22	FB4	-1.15	TEC	TEH	WAR		8	HOT	540UL
		0.39	0	P2	TWD	13	FB3	+0.98	TEC	TEH	WAR		8	HOT	540UL
102	83	0.30	0	P2	TWD	10	FB5	-1.64	TEC	TEH	WAR		8	HOT	540UL
102	87	0.45	0	P2	TWD	14	FB5	-1.67	TEC	TEH	WAR		8	HOT	540UL
104	37	0.85	194	8	PLP		TSH	+0.69	TEC	TEH			24	HOT	540UL
104	75	0.20	0	P2	TWD	6	FB4	-0.65	TEC	TEH	WAR		6	HOT	540UL
105	38	0.64	188	8	PLP		TSH	+1.04	TEC	TEH			20	HOT	540UL
106	69	0.39		P2	TWD	10	FB6	+1.73	TEC	TEH	WAR		10	HOT	540UL
109	62	0.14	0	P2	TWD	5	FB4	-0.83	TEC	TEH	WAR		12	HOT	540UL
110	99	0.96	151	8	PLP		TSH	+3.78	TEC	TEH			4	HOT	540UL
111	98	0.62	90	7	PLP		TSH	+4.35	01H	TEH			62	HOT	540UL
		0.56	90	7	PLP		TSH	+3.46	TEC	TEH			4	HOT	540UL
113	70	0.20	83	6	HNI		02H	-3.52	TEC	TEH			10	HOT	540UL
116	73	0.67	86	6	ADI		03C	+26.94	TEC	TEH			2	HOT	540UL
117	62	0.44	79	6	HNI		05C	+13.74	TEC	TEH			12	HOT	540UL
117	66	0.55	93	6	HNI		TSC	+17.99	TEC	TEH			10	HOT	540UL
118	73	0.10	117	8	PLP		TSH	+5.24	TEC	TEH			4	HOT	540UL

Total Tubes : 82
Total Records: 106

Query Name : array_query.qry

Query Title: Current array codes

Selected Outages/Scopes: 05/05 - EOC15 TTS Array Exam
05/05 - EOC15 Special Interest
Input Selected : All Tubes
Output File Selected :
Selected Indications : DNT,MAI,MCI,MMI,MVI,NQI,ODI,PLP,PVN,SAI,SCI,SVI,TWD,VOL,
Selected Probes : ALL
Selected Channels : ALL
Selected Cals : ALL
Selected Extent1 : ALL
Selected Extent2 : ALL
Selected Util 1 :
Selected Util 2 :
Selected Tube Heat :
TWD Range :
Volts Range :
Degrees Range :
Radius from Center Range :
Location Range :
Inspection Leg Queried : BOTH
Include In-Service or Out-Service Tubes : Both
Advanced User Query :

Pg 17 of 25

Current array codes

QUERY: array_query

ROW	COL	VOLTS	DEG	CHN	IND	%TW	LOCATION		EXT	EXT	UTIL 1	UTIL 2	CAL #	LEG	PROBE
24	3	4.75	99	84	PLP	TSH		+0.19	01H	TEH			61	HOT	540XP
		3.58	72	164	PLP	TSH		+0.06	01H	TEH	LAR		29	HOT	540XP
23	4	10.22	130	144	PLP	TSH		+0.89	01H	TEH	LAR		81	HOT	540XP
25	4	10.06	124	24	PLP	TSH		+1.72	01H	TEH			61	HOT	540XP
		5.30	121	152	PLP	TSH		+1.27	01H	TEH			61	HOT	540XP
		5.46	113	128	PLP	TSH		+0.65	01H	TEH	LAR		29	HOT	540XP
24	5	8.55	120	144	PLP	TSH		+1.54	01H	TEH			61	HOT	540XP
		6.63	118	156	PLP	TSH		+1.02	01H	TEH	LAR		29	HOT	540XP
		7.35	126	156	PLP	TSH		+0.47	01H	TEH	LAR		29	HOT	540XP
46	7	0.24	112	126	VOL	TSH		+9.07	01H	TEH			29	HOT	540XP
43	10	7.02	113	164	PLP	TSH		+1.84	01H	TEH			61	HOT	540XP
		3.90	83	56	PLP	TSH		+0.16	01H	TEH			61	HOT	540XP
		5.68	121	104	PLP	TSH		+1.91	TSH	TEH	LAR		31	HOT	540XP
		7.96	117	68	PLP	TSH		+0.75	TSH	TEH	LAR		31	HOT	540XP
42	11	11.10	124	84	PLP	TSH		+0.75	01H	TEH	LAR		31	HOT	540XP
44	11	21.70	131	48	PLP	TSH		+1.72	01H	TEH	LAR		29	HOT	540XP
102	37	4.58	108	144	PLP	TSH		+0.40	01H	TEH			61	HOT	540XP
		4.62	113	156	PLP	TSH		+0.43	01H	TEH	LAR		51	HOT	540XP
104	37	16.30	125	168	PLP	TSH		+0.37	01H	TEH			61	HOT	540XP
		12.08	126	44	PLP	TSH		+0.40	01H	TEH	LAR		23	HOT	540XP
103	38	4.70	124	128	PLP	TSH		+0.37	01H	TEH			61	HOT	540XP
		5.70	116	72	PLP	TSH		+0.58	01H	TEH	LAR		17	HOT	540XP
105	38	10.70	123	152	PLP	TSH		+0.88	01H	TEH			61	HOT	540XP
		9.63	119	36	PLP	TSH		+0.92	01H	TEH	LAR		19	HOT	540XP
100	49	0.34	95	10	VOL	04H		+8.08	05H	04H			13	HOT	540XP
80	59	0.55	89	Q5	VOL	FB5		+1.86	FB5	FB5	WAR		15	HOT	540XP
75	60	0.43	75	Q14	VOL	FB4		-1.08	FB4	FB4	WAR		13	HOT	540XP
79	60	0.43	58	Q14	VOL	FB4		-1.10	FB4	FB4	WAR		13	HOT	540XP
75	62	0.56	51	Q14	VOL	FB4		-0.94	FB4	FB4	WAR		9	HOT	540XP
85	62	0.26	54	Q5	VOL	FB5		-0.78	FB5	FB5	WAR		11	HOT	540XP
91	62	0.51	43	Q8	VOL	FB4		+0.92	FB4	FB4	WAR		9	HOT	540XP
109	62	0.28	76	98	VOL	FB4		-0.75	FB4	FB4	WAR		11	HOT	540XP
74	65	0.34	97	Q14	VOL	FB5		+1.54	FB5	FB5	WAR		9	HOT	540XP
		0.61	44	Q14	VOL	FB4		+0.43	FB4	FB4	WAR		9	HOT	540XP
3	66	0.25	103	18	VOL	TSC		+1.95	01C	TSC			1	COLD	540XP
2	67	0.43	97	22	VOL	TSC		+1.72	01C	TSC			3	COLD	540XP
77	68	0.44	76	Q14	VOL	FB6		-0.84	FB6	FB6	WAR		9	HOT	540XP
1	70	0.28	73	18	VOL	TSC		+1.44	01C	TSC			3	COLD	540XP
49	70	18.21	103	156	PLP	TSH		+0.24	TSH	TEH	LAR		71	HOT	540XP
118	73	2.26	125	120	PLP	TSH		+6.10	01H	TEH	LAR		3	HOT	540XP
		2.40	124	164	PLP	TSH		+5.73	01H	TEH			61	HOT	540XP
104	75	0.22	86	Q13	VOL	FB4		-1.33	FB4	FB4	WAR		5	HOT	540XP
98	77	0.88	61	Q4	VOL	FB5		-0.86	FB5	FB5	WAR		7	HOT	540XP
102	77	1.07	76	Q5	VOL	FB7		-0.69	FB7	FB7	WAR		7	HOT	540XP
		0.53	109	Q5	VOL	FB5		-0.74	FB5	FB5	WAR		7	HOT	540XP
		1.19	74	Q5	VOL	FB4		-1.09	FB4	FB4	WAR		7	HOT	540XP
		0.55	84	Q11	VOL	FB3		+0.63	FB3	FB3	WAR		7	HOT	540XP

Current array codes

QUERY: array_query.qry

ROW	COL	VOLTS	DEG	CHN	IND	%TW	LOCATION		EXT	EXT	UTIL 1	UTIL 2	CAL #	LEG	PROBE
98	85	0.44	61	Q6	VOL		FB4	+1.41	FB4	FB4	WAR		5	HOT	540XP
		0.57	97	Q13	VOL		FB5	-1.25	FB5	FB5	WAR		5	HOT	540XP
		0.32	54	Q6	VOL		FB3	+1.30	FB3	FB3	WAR		5	HOT	540XP
79	86	0.45	71	Q12	VOL		FB6	-1.16	FB6	FB6	WAR		7	HOT	540XP
		0.59	79	Q12	VOL		FB5	-1.19	FB5	FB5	WAR		7	HOT	540XP
97	86	0.41	33	Q6	VOL		FB6	-0.88	FB6	FB6	WAR		5	HOT	540XP
96	87	0.38	54	Q6	VOL		FB4	+1.42	FB4	FB4	WAR		5	HOT	540XP
		0.49	64	Q6	VOL		FB5	+1.69	FB5	FB5	WAR		5	HOT	540XP
52	95	0.45	87	78	VOL		02C	+30.76	02C	03C			71	HOT	540XP
111	98	11.42	132	96	PLP		TSH	+4.55	01H	TEH			61	HOT	540XP
		12.34	130	68	PLP		TSH	+4.82	01H	TEH	LAR		3	HOT	540XP
110	99	7.37	122	84	PLP		TSH	+4.47	01H	TEH			61	HOT	540XP
		7.92	117	84	PLP		TSH	+5.12	01H	TEH	LAR		3	HOT	540XP

Total Tubes : 37
Total Records: 60

Query Name : bobbin_query.qry

Query Title: Current bobbin non retest codes

Selected Outages/Scopes: 05/05 - EOC15 BOBBIN EXAM
Input Selected : All Tubes
Output File Selected :
Selected Indications : ADI,CHT,DNT,DPS,DWI,HNI,ICR,NEX,NQI,NQS,NSR,OBS,ODI,OVR,OXP,PLP,PVN,TWD,
Selected Probes : ALL
Selected Channels : ALL
Selected Cals : ALL
Selected Extent1 : ALL
Selected Extent2 : ALL
Selected Util 1 :
Selected Util 2 :
Selected Tube Heat :
TWD Range :
Volts Range :
Degrees Range :
Radius from Center Range :
Location Range :
Inspection Leg Queried : BOTH
Include In-Service or Out-Service Tubes : Both
Advanced User Query :

Current bobbin non retest codes

QUERY: bobbin_query

ROW	COL	VOLTS	DEG	CHN	IND	%TW	LOCATION	EXT	EXT	UTIL 1	UTIL 2	CAL #	LEG	PROBE
4	45	0.27	76	6	HNI	04H	+21.16	09C	TEH			95	HOT	540UL
4	133	10.84	182	1	DNT	09H	+6.42	09C	TEH			91	HOT	540UL
5	96	0.31	78	6	ADI	TSC	+9.29	09C	TEC			4	COLD	540UL
7	32	0.24	67	6	HNI	03H	+36.37	09C	TEH			95	HOT	540UL
7	112	0.63	83	6	HNI	08C	+3.37	09C	TEC			2	COLD	540UL
		1.25	86	6	HNI	06C	+34.37	09C	TEC			2	COLD	540UL
		0.24	163	1	HNI	04H	+8.80	09C	TEH			91	HOT	540UL
8	83	5.64	183	1	DNT	CBC	+10.70	09C	TEH			95	HOT	540UL
11	108	0.43	167	1	HNI	08H	+30.81	09C	TEH			91	HOT	540UL
12	131	0.57	85	6	HNI	05H	+33.37	09C	TEH			91	HOT	540UL
15	46	0.78	59	6	HNI	09H	+4.76	TEC	TEH			66	HOT	540UL
19	32	0.36	75	6	HNI	05H	+24.79	TEC	TEH			38	HOT	540UL
21	74	0.89	70	6	ADI	CBH	+9.23	TEC	TEH			68	HOT	540UL
23	40	0.51	70	6	ADI	08C	+7.57	TEC	TEH			66	HOT	540UL
		0.41	68	6	ADI	08H	+18.65	TEC	TEH			66	HOT	540UL
28	9	0.42	172	1	HNI	09C	+4.40	TEC	TEH			30	HOT	540UL
29	82	0.36	73	6	ADI	02H	+38.06	TEC	TEH			56	HOT	540UL
32	65	0.05	53	1	HNI	TSH	+13.35	TEC	TEH			70	HOT	540UL
32	139	0.21	158	1	HNI	06H	+21.72	TEC	TEH			44	HOT	540UL
35	104	2.40	9	1	NQI	04H	+5.90	TEC	TEH			62	HOT	540UL
37	42	0.31	76	6	HNI	02C	+6.38	TEC	TEH			68	HOT	540UL
37	104	1.38	11	1	NQI	04H	+6.85	TEC	TEH			64	HOT	540UL
52	79	0.36	103	P2	TWD 12	FB5	-0.84	TEC	TEH	WAR		56	HOT	540UL
52	91	0.31	120	P2	TWD 12	FB4	-0.90	TEC	TEH	WAR		62	HOT	540UL
53	76	0.69	74	P2	TWD 21	FB4	+1.66	TEC	TEH	WAR		56	HOT	540UL
53	116	0.28	82	6	ADI	TSC	+10.52	TEC	TEH			52	HOT	540UL
56	83	17.62	180	P1	DNT	09C	+1.53	TEC	TEH			54	HOT	540UL
57	46	2.12	178	P1	DNT	08C	+1.52	TEC	TEH			68	HOT	540UL
57	66	0.67		P2	TWD 20	FB5	-1.23	TEC	TEH	WAR		72	HOT	540UL
62	53	0.08	144	1	HNI	FB4	+6.50	TEC	TEH			70	HOT	540UL
62	95	0.08	83	P2	TWD 4	FB4	-0.93	TEC	TEH	WAR		62	HOT	540UL
65	72	0.89	81	6	HNI	08C	+3.43	TEC	TEH			18	HOT	540UL
66	85	0.37	104	P2	TWD 14	FB4	+1.50	TEC	TEH	WAR		10	HOT	540UL
67	74	0.37	84	P2	TWD 13	FB5	+0.51	TEC	TEH	WAR		8	HOT	540UL
69	74	0.32	0	P2	TWD 13	FB5	+0.71	TEC	TEH	WAR		6	HOT	540UL
71	66	0.23	100	P2	TWD 8	FB5	+1.49	TEC	TEH	WAR		20	HOT	540UL
75	42	0.28	73	6	HNI	07H	+22.37	TEC	TEH			28	HOT	540UL
77	66	0.13		P2	TWD 6	FB5	+1.09	TEC	TEH	WAR		78	HOT	540UL
79	66	0.29	109	P2	TWD 10	FB5	+1.58	TEC	TEH	WAR		20	HOT	540UL
80	45	0.64	84	6	HNI	TSC	+3.59	TEC	TEH			26	HOT	540UL

Current bobbin non retest codes

QUERY: bobbin_query.qry

ROW	COL	VOLTS	DEG	CHN	IND	%TW	LOCATION		EXT	EXT	UTIL 1	UTIL 2	CAL #	LEG	PROBE
80	73	0.59	0	P2	TWD	22	FB5	+1.67	TEC	TEH	WAR		6	HOT	540UL
		0.39	0	P2	TWD	16	FB4	+1.36	TEC	TEH	WAR		6	HOT	540UL
80	95	0.33	77	6	HNI		05H	+33.89	TEC	TEH			14	HOT	540UL
		0.15	92	6	HNI		05H	+32.53	TEC	TEH			14	HOT	540UL
81	68	0.44		P2	TWD	16	FB6	-1.75	TEC	TEH	WAR		78	HOT	540UL
		0.38		P2	TWD	15	FB4	+1.67	TEC	TEH	WAR		78	HOT	540UL
85	84	0.33	87	P2	TWD	12	FB5	-1.13	TEC	TEH	WAR		12	HOT	540UL
86	73	0.74	0	P2	TWD	26	FB5	+1.62	TEC	TEH	WAR		6	HOT	540UL
		0.60	0	P2	TWD	22	FB4	+1.45	TEC	TEH	WAR		6	HOT	540UL
		0.57	0	P2	TWD	21	FB6	-1.70	TEC	TEH	WAR		6	HOT	540UL
87	82	0.42	85	6	HNI		03C	+17.43	TEC	TEH			10	HOT	540UL
88	73	0.53	92	P2	TWD	17	FB5	+1.60	TEC	TEH	WAR		8	HOT	540UL
88	77	0.89	65	6	HNI		08H	+14.80	TEC	TEH			6	HOT	540UL
89	62	0.31		P2	TWD	12	FB5	-0.56	TEC	TEH	WAR		78	HOT	540UL
90	69	0.33	115	P2	TWD	12	FB4	+0.79	TEC	TEH	WAR		18	HOT	540UL
91	62	0.23	67	P2	TWD	9	FB5	-0.51	TEC	TEH	WAR		18	HOT	540UL
92	69	0.36	99	P2	TWD	12	FB4	+0.65	TEC	TEH	WAR		20	HOT	540UL
92	73	0.44	0	P2	TWD	16	FB5	+1.62	TEC	TEH	WAR		6	HOT	540UL
93	62	0.64	90	P2	TWD	20	FB5	-0.62	TEC	TEH	WAR		20	HOT	540UL
93	70	0.20		P2	TWD	8	FB6	-1.19	TEC	TEH	WAR		18	HOT	540UL
		0.51	0	P2	TWD	18	FB5	-1.08	TEC	TEH	WAR		18	HOT	540UL
95	62	0.20	117	P2	TWD	8	FB5	-0.68	TEC	TEH	WAR		18	HOT	540UL
95	68	0.43	97	P2	TWD	14	FB7	-0.73	TEC	TEH	WAR		20	HOT	540UL
		0.59	106	P2	TWD	18	FB5	-1.30	TEC	TEH	WAR		20	HOT	540UL
		0.37	81	P2	TWD	12	FB3	-0.54	TEC	TEH	WAR		20	HOT	540UL
97	68	0.69	0	P2	TWD	23	FB5	-1.24	TEC	TEH	WAR		18	HOT	540UL
99	64	0.19		P2	TWD	9	FB5	+1.70	TEC	TEH	WAR		78	HOT	540UL
100	69	0.34	62	P2	TWD	13	FB6	+1.84	TEC	TEH	WAR		18	HOT	540UL
		0.29	101	P2	TWD	11	FB5	+0.68	TEC	TEH	WAR		18	HOT	540UL
101	80	0.38	92	P2	TWD	15	FB6	-0.99	TEC	TEH	WAR		10	HOT	540UL
102	55	0.09	158	1	HNI		07H	+34.38	TEC	TEH			22	HOT	540UL
108	71	0.21	81	P2	TWD	8	FB5	+0.48	TEC	TEH	WAR		18	HOT	540UL
108	73	0.27	0	P2	TWD	10	FB4	+1.45	TEC	TEH	WAR		6	HOT	540UL
110	65	0.24	107	P2	TWD	9	FB4	-1.66	TEC	TEH	WAR		18	HOT	540UL
		0.37	0	P2	TWD	14	FB5	-1.21	TEC	TEH	WAR		18	HOT	540UL
113	64	0.24	109	P2	TWD	9	FB5	-1.63	TEC	TEH	WAR		18	HOT	540UL
114	53	0.55	84	6	ADI		02H	+30.29	TEC	TEH			24	HOT	540UL
114	61	0.39	0	P2	TWD	15	FB4	-1.12	TEC	TEH	WAR		22	HOT	540UL
114	69	0.23	102	P2	TWD	9	FB5	+0.71	TEC	TEH	WAR		18	HOT	540UL
		0.21	136	P2	TWD	8	FB4	+1.47	TEC	TEH	WAR		18	HOT	540UL

Total Tubes : 66
Total Records: 80

Current bobbin non retest codes

QUERY: bobbin_query.qry

ROW	COL	VOLTS	DEG	CHN	IND	%TW	LOCATION	EXT	EXT	UTIL 1	UTIL 2	CAL #	LEG	PROBE

Query Name : array_query.qry

Query Title: Current array codes

Selected Outages/Scopes: 05/05 - EOC15 PROXIMITY TUBES
05/05 - EOC15 TTS Array
05/05 - EOC15 Special Interest

Input Selected : All Tubes
Output File Selected :
Selected Indications : DNT,MAI,MCI,MMI,MVI,NQI,ODI,PLP,PVN,SAI,SCI,SVI,TWD,VOL,
Selected Probes : ALL
Selected Channels : ALL
Selected Cals : ALL
Selected Extent1 : ALL
Selected Extent2 : ALL
Selected Util 1 :
Selected Util 2 :
Selected Tube Heat :
TWD Range :
Volts Range :
Degrees Range :
Radius from Center Range :
Location Range :
Inspection Leg Queried : BOTH
Include In-Service or Out-Service Tubes : Both
Advanced User Query :

Current array codes

QUERY: array_query

ROW	COL	VOLTS	DEG	CHN	IND	%TW	LOCATION			EXT	EXT	UTIL 1	UTIL 2	CAL #	LEG	PROBE
60	19	2.93	88	60	PLP		TSH	+0.28		TSH	TEH	LAR		33	HOT	540XP
59	20	17.26	114	156	PLP		TSH	+0.22		TSH	TEH	LAR		33	HOT	540XP
61	20	5.91	104	144	PLP		TSH	+0.57		TSH	TEH	LAR		35	HOT	540XP
99	34	1.61	109	150	TWD	24	TSC	+0.00	TO+0.12	TSC	01C	0.32	0.12	25	HOT	540XP
		1.98	84	150	VOL		TSC	+0.11		TSC	01C			25	HOT	540XP
114	53	0.40	85	90	VOL		02H	+30.33		03H	02H			23	HOT	540XP
89	62	0.66	28	Q2	VOL		FB5	-0.64		FB5	FB5	WAR		77	HOT	540XP
99	64	0.56	24	Q10	VOL		FB5	+1.51		FB5	FB5	WAR		77	HOT	540XP
77	66	0.36	87	Q10	VOL		FB5	+1.45		FB5	FB5	WAR		77	HOT	540XP
81	68	0.95	38	Q3	VOL		FB6	-1.39		FB6	FB6	WAR		77	HOT	540XP
		0.40	58	Q10	VOL		FB4	+1.14		FB4	FB4	WAR		77	HOT	540XP
8	83	3.53	191	154	DNT		CBC	+10.59		CBC	CBH			115	HOT	540XP
56	83	23.68	182	Q11	DNT		09C	+1.67		09C	09C			53	HOT	540XP
5	96	0.30	103	102	VOL		TSC	+9.06		01C	TSC			3	COLD	540XP
4	133	2.88	175	98	DNT		09H	+6.20		CBH	09H			87	HOT	540XP

Total Tubes : 13
Total Records: 15