COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
001	RX PRESS 2C32-~~R605C~~ 2B21-D004B 125VDC CAB 2B	3/16' 1/8' 2	1-3/4'x 1'	B-ON-GRAY 2	
002	RX WTR LVL 2C32-~~R606C~~ 2B21-D004B 125VDC CAB 2B	3/16' 1/8' 2	1-3/4'x 1'	B-ON-GRAY 2	
003	RFP FLOW A 2N21-R636A INST BUS 2A	3/16' 1/8'	1-3/4'x 1'	B-ON-W	
004	RFP FLOW B 2N21-R636B INST BUS 2A	3/16' 1/8'	1-3/4'x 1'	B-ON-W	
005	RX PRESS/RX WTR LVL 2C32-R608 VITAL AC	3/16' 1/8'	4' x 1'	B-ON-W	
006	A VITAL AC	3/16' 1/8'	1-3/4'x 7/8'	B-ON-W	RESET PUSHBUTTON
007	B 125VDC CAB 2A	3/16' 1/8'	1-3/4'x 7/8'	B-ON-W	RESET PUSHBUTTON
008	C 125VDC CAB 2B	3/16' 1/8'	1-3/4'x 7/8'	B-ON-W	RESET PUSHBUTTON
009	FLOW A 2C32-R604A VITAL AC	3/16' 1/8'	1-3/4'x 1'	B-ON-W	
010	FLOW B 2C32-R604B 125VDC CAB 2A	3/16' 1/8'	1-3/4'x 1'	B-ON-W	
011	PRESS CONTROL VLV F127 2C11-R607 INST BUS 2A	3/16' 1/8'	3-1/4'x 1-1/4'	B-ON-W	

ACAD A2160301

Rev.	Date	By	Checked	Description	Appr. 1	Appr. 2	Appr. 3	Appr. 4	Appr. 5
2	11-18-94	LCF	JBH	REVISED PER ABN 94-0207 (NO DCR)	ASK				
1	3-21-93	OWS	HEW	REVISED PER ABN 93-0041	WTB	DEK			
0	3-5-90	BAS		APPROVED, ISSUED PER ABN 89-840 AND WCN 88-246-1	ABC	DEK	RBV	WLO	GDM

Southern Company Services, Inc. for Georgia Power Company

EDWIN I. HATCH NUCLEAR POWER PLANT – UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H11-P603

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21603	01	2

Drawn: B Snow | Typed: JDM | Checked:

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
012	TANK LEVEL 2C41-R601 2R25-S011	3/16" 1/8"	1-3/4" x 1"	B-ON-W	
013	DISCH PRESS 2C41-R600 2R25-S011	3/16" 1/8"	1-3/4" x 1"	B-ON-W	
014	FW dp 2N21-R610 INST BUS 2A	3/16" 1/8"	1-3/4" x 1"	B-ON-W	
015	A 2C32-R603A VITAL AC	3/16" 1/8"	1-3/4" x 1"	B-ON-W	
016	B 2C32-R603B 125VDC CAB 2A	3/16" 1/8"	1-3/4" x 1"	B-ON-W	
017	C 2C32-R603C 125VDC CAB 2B	3/16" 1/8"	1-3/4" x 1"	B-ON-W	
018	D 2C32-R603D INST BUS 2B	3/16" 1/8"	1-3/4" x 1"	B-ON-W	
019	RX PRESS/TURB STM FLOW 2C32-R609 2B21-D003A VITAL AC	3/16" 1/8"	4" x 1"	B-ON-ORANGE	
020					DELETED
021	FW A TO RX 2N21-F006A 2R24-S013	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
022	FW B TO RX 2N21-F006B 2R24-S013	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
023	DR WTR FLOW 2C11-R604 INST BUS 2A	3/16" 1/8"	1-3/4" x 1"	B-ON-W	
024	CLG WTR FLOW 2C11-R605 INST BUS 2A	3/16" 1/8"	1-3/4" x 1"	B-ON-W	

4

Rev.	Date	By	Description	Checked	Appr. 1
4	7-23-97	D.K.	REVISED PER ABN 94-0008-017.	HEW	CCS

Southern Company Services, Inc. for Georgia Power Company ACADR13 A2160302

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H11-P603

Drawn: D.K. | Designed: JDM | Date:

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21603	02	4

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
025	CHG WTR PRESS	3/16"	1-3/4"x	B-ON-W	
	2C11-R601		1"		
	INST BUS 2A	1/8"			
026	CLG WTR dp	3/16"	1-3/4"x	B-ON-W	
	2C11-R603		1"		
	2R25-S102	1/8"			
027	DR WTR dp	3/16"	1-3/4"x	B-ON-W	
	2C11-R602		1"		
	2R25-S102	1/8"			
028	STM FLOW/FW FLOW	3/16"	4" x 1"	B-ON-W	
	2C32-R607				
	VITAL AC	1/8"			
029	WIDE RANGE B	3/16"	1-3/4"x	B-ON-ORANGE	1
	2B21-R604B		1"		
	2B21-D003A	1/8"			
	125VDC CAB 2E				
030	A	3/16"	1-3/4"x	B-ON-GRAY	
	2C32-R605A		1"		
	2B21-D004B	1/8"			
	VITAL AC				
031	B	3/16"	1-3/4"x	W-ON-PURPLE	
	2C32-R605B		1"		
	2B21-D004A	1/8"			
	125VDC CAB 2A				
032	COOLING WTR	3/16"	2-5/8"x	B-ON-W	
	VLV 2C11-F127		7/8"		
033	WIDE RANGE A	3/16"	1-3/4"x	W-ON-BURGANDY	1
	2B21-R604A		1"		
	2B21-D003B	1/8"			
	125VDC CAB 2D				
034	NARROW RANGE A	3/16"	1-3/4"x	B-ON-GRAY	
	2C32-R606A		1"		
	2B21-D004B	1/8"			
	VITAL AC				
035	NARROW RANGE B	3/16"	1-3/4"x	W-ON-PURPLE	
	2C32-R606B		1"		
	2B21-D004A	1/8"			
	125VDC CAB 2A				
036	SCRAM GROUP A	1/4"	5" x 1"	W-ON-R	
	1 2 3 4				
037	IRM BYPASS	3/16"	2" x	B-ON-W	
			3/4"		

Rev.	Date	By	Checked	Description	Appr. 1	Appr. 2	Appr. 3	Appr. 4	Appr. 5
1	11-18-94	LCF	LBH	REVISED PER ABN 94-0207 (NO DCR)	ASK				
0	3-5-90	BAS	JMR	APPROVED, ISSUED PER ABN 89-840	ABC	DEK	RBV	WLO	GDM
				AND WCN 88-246-1					

Southern Company Services, Inc. FOR Georgia Power Company

EDWIN I. HATCH NUCLEAR POWER PLANT – UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H11-P603

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21603	03	1

Drawn: B Snow | Typed: JDM | Checked:

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
038					DELETED
038A					DELETED
039					DELETED
040	IRM-APRM ~~2C51-R603A~~ VITAL AC	3/16" 3/16" 1/8"	4" x 1"	B-ON-W	LABEL BELOW
041	RX HI LEVEL TRIP	1/4"	3-1/2" x 1/2"	B-ON-W	
042	FEEDWATER ISOLATION	1/4"	3-1/2" x 1/2"	B-ON-W	
043	IRM-APRM/RBM ~~2C51-R603C~~ VITAL AC	3/16" 3/16" 1/8"	4" x 1"	B-ON-W	LABEL BELOW
044					DELETED
045					DELETED
046					DELETED
047					DELETED
048					DELETED
049					DELETED
050					DELETED
051	RBM	1/2"	2-1/2" x 1"	B-ON-W	

3.0

3.0

VER.	Date	By	Description	Checked	Appr.
3.0	04/21/15	GTR	REVISED PER ABN SNC345312J004 VER 1.0	HBF	JTL

Southern Company Services, Inc. for Georgia Power Company ACAD2000 A2160304

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H11-P603

Drawn: D.K. | Designed: JDM | Date:

PROJECT I.D.	DRAWING NUMBER	SHEET	VER
10-502	A-21603	04	3.0

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
052	RBM BYPASS	3/16"	2" x 3/4"	B-ON-W	
053	REACTOR MODE	3/16"	2-5/8" x 7/8"	B-ON-W	
054					DELETED
055	SCRAM GROUP B 1 2 3 4	1/4"	5" x 1"	W-ON-R	
056					DELETED
057	APRM BYPASS	3/16"	2" x 3/4"	B-ON-W	
058	IRM BYPASS	3/16"	2" x 3/4"	B-ON-W	
058A					DELETED
059	IRM-APRM/RBM 2C51-R603B VITAL AC	3/16" 3/16" 1/8"	4" x 1"	B-ON-W	LABEL BELOW
060					DELETED
061	IRM-APRM 2C51-R603D VITAL AC	3/16" 3/16" 1/8"	4" x 1"	B-ON-W	LABEL BELOW
062-1					DELETED
062-2					DELETED

4.0

VER.	Date	By	Description	Checked	Appr.
4.0	04/21/15	GTR	REVISED PER ABN: SNC345312J005	HBF	JTL

Southern Company Services, Inc. for Georgia Power Company

ACAD2000 A2160305

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H11-P603

Drawn: D.K. | Designed: JDM | Date:

PROJECT I.D.	DRAWING NUMBER	SHEET	VER.
10-502	A-21603	05	4.0

COMP NO.	LABEL CONTENTS	LET-TER SIZE	PLATE DIMEN-SIONS (LxW)	COLOR CODING	NOTES
063					DELETED
064					DELETED
065					DELETED
066					DELETED
067					DELETED
068					DELETED
069	A	3/16"	1-3/4" x 1"	B-ON-W	
	2C51-R601A				
	24/48VDC CAB 2A	1/8"			
070	B	3/16"	1-3/4" x 1"	B-ON-W	
	2C51-R601B				
	24/48VDC CAB 2B	1/8"			
071	C	3/16"	1-3/4" x 1"	B-ON-W	
	2C51-R601C				
	24/48VDC CAB 2A	1/8"			
072	D	3/16"	1-3/4" x 1"	B-ON-W	
	2C51-R601D				
	24/48VDC CAB 2B	1/8"			
073	SOURCE RANGE MONITOR PERIOD	1/4"	7" x 1/2"	B-ON-W	
074	A	3/16"	1-3/4" x 1"	B-ON-W	
	2C51-R600A				
	24/48VDC CAB 2A	1/8"			
075	B	3/16"	1-3/4" x 1"	B-ON-W	
	2C51-R600B				
	24/48VDC CAB 2B	1/8"			
076	C	3/16"	1-3/4" x 1"	B-ON-W	
	2C51-R600C				
	24/48VDC CAB 2A	1/8"			

2.0

VER	Date	By	Description	Checked	Appr.
2.0	04/22/15	GTR	REVISED PER ABN SNC345312J006, VER 1.0	HBF	JTL

Southern Company Services, Inc. for Georgia Power Company ACAD2000 A2160306

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H11-P603

Drawn: B. SNOW | Designed: JDM | Date:

PROJECT I.D.	DRAWING NUMBER	SHEET	VER
10-502	A-21603	06	2.0

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
077	D 2C51-R600D	3/16"	1-3/4" x 1"	B-ON-W	
	24/48VDC CAB 2B	1/8"			
078	SOURCE RANGE MONITOR LEVEL	1/4"	7"x1/2"	B-ON-W	
079	SOURCE RANGE LEVEL 2C51-R602	3/16"	4" x 1"	B-ON-W	
	VITAL AC	1/8"			
080-1					DELETED
080-2					DELETED
080-3					DELETED
080-4					DELETED
080-5					DELETED
081					DELETED
082					DELETED
083					DELETED
084					DELETED
085	ROD WORTH MINIMIZER	1/2"	5" x 2"	B-ON-W	
086	CORE PLATE dp/RX CORE FLOW 2B21-R613	3/16"	4" x 1"	B-ON-W	
	INST BUS 2A	1/8"			

3.0

ACAD2000 A2160307

VER	Date	By	Checked	Description	Appr.
3.0	04/22/15	GTR	HBF	REVISED PER ABN SNC 345312J007, VER 1.0	JTL

Southern Company Services, Inc. for Georgia Power Company

EDWIN I. HATCH NUCLEAR POWER PLANT – UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H11-P603

PROJECT I.D.	DRAWING NUMBER	SHEET	VER
10-502	A-21603	07	3.0

Drawn: B Snow | Typed: JDM | Checked: JMR

	COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
	087	CRD	1/2″	5″ x 1″	B-ON-W	
	088	FEEDWATER CONTROL	1/2″	9″ x 1″	B-ON-W	
	089	REACTOR PRESSURE SELECT	3/16″	2-5/8″x 7/8″	B-ON-W	
	090	REACTOR WATER LEVEL SELECT	3/16″	2-5/8″x 7/8″	B-ON-W	
	091	REACTOR LEVEL MODE SELECT	3/16″	2-5/8″x 7/8″	B-ON-W	
	092	FEEDWATER CONTROL MODE SELECT	3/16″	2-5/8″x 7/8″	B-ON-W	
4.0	093	PUMP dp CONTROL 2N21-R609 VITAL AC	3/16″ 1/8″	2-3/4″x 1″	B-ON-W	
4.0	094	FW LVL CONTROL-TURB 2C32-R600 VITAL AC	3/16″ 1/8″	2-3/4″x 1″	B-ON-W	
	095	FW S/U LVL CONTROL VLV 2C32-R619 VITAL AC	3/16″ 1/8″	2-3/4″x 1″	B-ON-W	
4.0	096	RFP A EAP SPEED CNTL 2C32-R601A INST BUS 2A	3/16″ 1/8″	2-3/4″x 1″	B-ON-W	
4.0	097	RFP B EAP SPEED CNTL 2C32-R601B VITAL AC	3/16″ 1/8″	2-3/4″x ″1	B-ON-W	
	098	1106A 1106B SQUIB VLV READY	3/16″	2-5/8″x 7/8″	B-ON-W	
	099	SBLC PUMP 2A 2C41-C001A 2R24-S011	3/16″ 1/8″	2-5/8″x 7/8″	B-ON-W	
	100	SBLC PUMP 2B 2C41-C001B 2R24-S012	3/16″ 1/8″	2-5/8″x 7/8″	B-ON-W	

Ver.	Date	By	Description	Checked	Appr. 1
4.0	7-22-10	Vep	REVISED PER ABN-H01625, VER. 1.0	MLH	WCN
			(SEE MICROFILM FOR PREVIOUS VERSION SIGNATURES)		

SOUTHERN COMPANY

ACAD2K A2160308

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H11-P603

Drawn: B.Snow	Designed: JDM	Date: 3-5-90

PROJECT I.D.	DRAWING NUMBER	SHEET	VER.
10-502	A-21603	08	4.0

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
101	SBLC MANUAL INJ VLV 2C41-F008	3/16"	2-5/8" x 7/8"	B-ON-W	
101A	PUMP SELECT SWITCH	3/16"	2-5/8" x 7/8"	B-ON-W	
102	CRD PUMP 2C11-C001B 2R22-S006	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
103	RETURN TO VESSEL FLOW CONTROL 2C11-F005 2R24-S012	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
104	PUMP B LOCA TRIP RESET 2R25-S006	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
105	DELETED				1
106	CRD PUMP 2C11-C001A 2R22-S005	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
107	DRIVE PRESS CNTL VLV 2C11-F003 2R24-S012	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
108	PUMP A LOCA TRIP RESET 2R25-S004	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
109	FLOW CONTROL VLV 2C11-F002A	3/16"	2-5/8" x 7/8"	B-ON-W	
110	FLOW CONTROL VLV 2C11-F002B	3/16"	2-5/8" x 7/8"	B-ON-W	
111	STAB VALVES A&B	3/16"	2-5/8" x 7/8"	B-ON-W	
112	IRM A I APRM A	3/16"	2-3/4" x 1"	B-ON-W	
113	IRM C I APRM C	3/16"	2-3/4" x 1"	B-ON-W	

Rev.	Date	By	Checked	Description	Appr. 1	Appr. 2	Appr. 3	Appr. 4	Appr. 5
1	6-24-03	DFV	MDN	REVISED PER ABN 00-039-007	DEW				
				(SEE MICROFILM FOR PREVIOUS REVISION SIGNATURES)					

Southern Company Services, Inc. FOR Georgia Power Company

EDWIN I. HATCH NUCLEAR POWER PLANT – UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H11-P603

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21603	09	1

Drawn: B Snow | Typed: JDM | Checked:

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
1 114	IRM E I	3/16"	2-3/4" x 1"	B-ON-W	
115	IRM G I RBM A	3/16"	2-3/4" x 1"	B-ON-W	
116	IRM A RANGE SW 2C51-K602A	3/16"	2-3/4" x 1"	B-ON-W	
117	IRM C RANGE SW 2C51-K602C	3/16"	2-3/4" x 1"	B-ON-W	
118	IRM E RANGE SW 2C51-K602E	3/16"	2-3/4" x 1"	B-ON-W	
119	IRM G RANGE SW 2C51-K602G	3/16"	2-3/4" x 1"	B-ON-W	
120	P603 ANNUNCIATOR	1/4"	4" x 1/2"	B-ON-W	
121	CRD FLOW CONTROL 2C11-R600 INST BUS 2A	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
122	P603-1	1/2"	4" x 1"	B-ON-W	
123	P603-2	1/2"	4" x 1"	B-ON-W	
124	REFUEL MODE SELECT PERMISSIVE	3/16"	2-5/8" x 7/8"	B-ON-W	
125	ROD SELECT POWER	3/16"	2-5/8" x 7/8"	B-ON-W	
126	EMERG IN NOTCH OVERRIDE	3/16"	2-5/8" x 7/8"	B-ON-W	
127	SCRAM CHANNEL A A2 A1	3/16"	5" x 1/2"	B-ON-W	
128	SCRAM CHANNEL B B1 B2	3/16"	5" x 1/2"	B-ON-W	
129	CONTROL ROD SELECT	1/2"	9" x 1"	B-ON-W	

Rev.	Date	By	Description	Checked	Appr. 1
1	7-23-97	D.K.	REVISED PER ABN 94-0008-017.	HEW	CCS

Southern Company Services, Inc. for Georgia Power Company ACADR13 A2160310

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H11-P603

Drawn: D.K. | Designed: JDM | Date:

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21603	10	1

COMP NO.	LABEL CONTENTS	LET-TER SIZE	PLATE DIMEN-SIONS (LxW)	COLOR CODING	NOTES
130	REACTOR SCRAM RESET	3/16"	2-5/8" x 7/8"	B-ON-W	
131	ROD DRIFT ALARM TEST	3/16"	2-5/8" x	B-ON-W	
	INST BUS 2A	1/8"	7/8"		
132	TIMER MALFUNCTION SELECT BLOCK	3/16"	2-5/8" x 7/8"	B-ON-W	
133	TIMER TEST	3/16"	2-5/8" x	B-ON-W	
	VITAL AC	1/8"	7/8"		
134	ROD SETTLE | ROD OUT	3/16"	2-5/8" x 3/4"	B-ON-W	
135	ROD IN | ROD OUT	3/16"	2-5/8" x 3/4"	B-ON-W	
136	ROD MOVEMENT CONTROL	3/16"	2-5/8" x 7/8"	B-ON-W	
137	IRM B | APRM B	3/16"	2-3/4" x 1"	B-ON-W	
138	IRM D | RBM B	3/16"	2-3/4" x 1"	B-ON-W	
139	IRM F | APRM D	3/16"	2-3/4" x 1"	B-ON-W	
3					
140	IRM H | APRM A	3/16"	2-3/4" x 1"	B-ON-W	
141	IRM B RANGE SW 2C51-K602B	3/16"	2-3/4" x 1"	B-ON-W	
142	IRM D RANGE SW 2C51-K602D	3/16"	2-3/4" x 1"	B-ON-W	
143	IRM F RANGE SW 2C51-K602F	3/16"	2-3/4" x 1"	B-ON-W	
144	IRM H RANGE SW 2C51-K602H	3/16"	2-3/4" x 1"	B-ON-W	
145	SEQUENCE MODE SELECTOR	3/16"	2-5/8" x 7/8"	B-ON-W	

Rev.	Date	By	Description	Checked	Appr. 1
3	7-23-97	D.K.	REVISED PER ABN 94-0008-017.	HEW	CCS

Southern Company Services, Inc. for Georgia Power Company ACADR13 A2160311

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H11-P603

Drawn: D.K. Designed: JDM Date:

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21603	11	3

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
146					
147					
148	SRM BYPASS	3/16"	3" x 3/4"	B-ON-W	
	24/48VDC CAB 2A 24/48VDC CAB 2B	1/8"			
149	SRM/IRM	1/2"	3-1/2" x 1"	B-ON-W	
150	SOURCE RANGE MONITOR A B C D	3/16"	3-1/2" x 7/8"	B-ON-W	
	2R25-S101	1/8"			
151	SRM/IRM DRIVE CONTROL	3/16"	3-1/2" x 7/8"	B-ON-W	
	2R25-S101	1/8"			
152	INBOARD VENT VLV 2T48-F339 MSL HI PRESS OVRD 2C61-S34A	3/16"	2-5/8" x 1-3/8"	B-ON-W	
153	INBOARD VENT VLV 2T48-F341 MSL HI PRESS OVRD 2C61-S34C	3/16"	2-5/8" x 1-3/8"	B-ON-W	
154	OUTBOARD VENT VLV 2T48-F338 MSL HI PRESS OVRD 2C61-S34B	3/16"	2-5/8" x 1-3/8"	B-ON-W	
155	OUTBOARD VENT VLV 2T48-F340 MSL HI PRESS OVRD 2C61-S34D	3/16"	2-5/8" x 1-3/8"	B-ON-W	
156	MASTER RECIRC FLOW CONTROL 3.0	3/16"	3-1/4" x 7/8"	B-ON-W	
157	VENT VLV 2C11-F035B	3/16"	2-5/8" x 7/8"	B-ON-W	

Ver.	Date	By	Description	Checked	Appr. 1
3.0	04/27/09	KB	REVISED PER ABN 2040048501J035, VER. 1.0.	CFC	JMR
			(SEE MICROFILM FOR PREVIOUS VERSION SIGNATURES)		

SOUTHERN COMPANY

ACAD A2160312

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H11-P603

Drawn: B.SNOW | Designed: | Date: 03/05/90

PROJECT I.D.	DRAWING NUMBER	SHEET	VER.
10-502	A-21603	12	3.0

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
158	VENT VLV 2C11-F035A	3/16'	2-5/8'x 7/8'	B-ON-W	
159	DRAIN VLV 2C11-F037	3/16'	2-5/8'x 7/8'	B-ON-W	
160	VENT VLV 2C11-F010B	3/16'	2-5/8'x 7/8'	B-ON-W	
161	VENT VLV 2C11-F010A	3/16'	2-5/8'x 7/8'	B-ON-W	
162	DRAIN VLV 2C11-F011	3/16'	2-5/8'x 7/8'	B-ON-W	
163	SCRAM DISCHARGE VOLUME	1/2'	5' x 2'	B-ON-W	
164	DISCH VOL HI LEVEL BYP	3/16'	2-5/8'x 7/8'	B-ON-W	
165					DELETED
166					DELETED
167	PRI CONTAINMENT	1/2'	5' x 1'	B-ON-W	
168	ROD MOVEMENT CONTROL	1/2'	4' x 2-1/2'	B-ON-W	
169	IRM/APRM	1/2'	5' x 1'	B-ON-W	
170	SRM	1/2'	5' x 1'	B-ON-W	
171	RMCS	1/2'	2' x 1'	B-ON-W	
172	REACTOR SCRAM	1/2'	5' x 2'	W-ON-R	

1

Rev.	Date	By	Checked	Description	Appr. 1	Appr. 2	Appr. 3	Appr. 4	Appr. 5
1	8-8-91	D.K.	DWS	REVISED PER WCN 90-231-02	ABC	DEK			
0	3-5-90	B.S.	JMR	APPROVED ISSUED PER ABN 89-840 & WCN 88-246-1	ABC	DEK	RBV	WLO	GDM

Southern Company Services, Inc. FOR Georgia Power Company

EDWIN I. HATCH NUCLEAR POWER PLANT – UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H11-P603

Drawn: B Snow | Typed: JDM | Checked: JMR

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21603	13	1

COMP NO.	LABEL CONTENTS	LET-TER SIZE	PLATE DIMEN-SIONS (LxW)	COLOR CODING	NOTES
173	ROD DISPLAY	1/2"	4" x 2"	B-ON-W	
174	REACTOR WATER LEVEL	1/4"	3-1/2" x 1/2"	B-ON-W	
175	REACTOR PRESSURE	1/4"	3-1/2" x 1/2"	B-ON-W	
176					DELETED
178	FW INDICATION	1/2"	5" X 1"	B-ON-W	
179	MAIN STEAM LINE FLOW	1/4"	7" x 1/2"	B-ON-W	
180					DELETED
181	CRD INDICATION	1/2"	5" x 1"	B-ON-W	
182	IRM/APRM	1/2"	5" x 1"	B-ON-W	
183	CONTROL ROD DISPLAY	1/2"	10" x 1"	B-ON-W	
184	REACTOR CONTROL 2H11-P603	1"	20" x 2"	B-ON-W	MFG 2 LABEL PLATES ONE FOR FRONT/ ONE FOR BACK
185	SBLC	1/2"	4" x 1"	B-ON-W	
186					

1

Rev.	Date	By	Description	Checked	Appr. 1
1	8-28-97	Vep	REVISED PER ABN 95-0054-004.	JAB	KDT
			(SEE MICROFILM FOR PREVIOUS REVISION SIGNATURES)		

Southern Company Services, Inc. for Georgia Power Company ACAD13 A2160314

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H11-P603

Drawn: B.Snow | Designed: ABC | Date: 3-5-90

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21603	14	1

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
187	SBLC	1/2"	2-1/2"x 1"	W-ON-R	
188	ROD MOVEMENT CONTROL	3/8"	2-5/8"x 2"	B-ON-W	
189	TORUS	1/4"	1-7/8"x 1/2"	B-ON-W	
190	DRYWELL	1/4"	2-1/8"x 1/2"	B-ON-W	
191	DISCH VOL ISOL TEST	3/16"	2-5/8"x 7/8"	B-ON-W	PLACE BELOW COMPONENT 162
192	CORE dp 100%=30 PSI	3/16"	2" x 3/4"	B-ON-W	INFORMATION LABEL PLACE BELOW RECORDER
193	READY TO RESET	3/16"	2" x 7/8"	B-ON-W	
194	MANUAL INITIATION	3/16"	2" x 7/8"	B-ON-W	
195	POWER AVAILABLE	3/16"	2" x 7/8"	B-ON-W	
196	MANUAL INITIATION CH A 125VDC CAB 2D	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	
197	MANUAL INITIATION CH B 125VDC CAB 2D	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	
198	RESET 125VDC CAB 2D	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	

1

Rev.	Date	By	Checked	Description	Appr. 1	Appr. 2	Appr. 3	Appr. 4	Appr. 5
1	2-1-94	T.N.	DWS	REVISED PER ABN 93-0236	DS	RBV			
0	3-5-90	B.A.	JMR	APPROVED, ISSUED PER ABN 89-840 AND WCN 88-246-1	ABC	DEK	RBV	WLO	GDM

Southern Company Services, Inc. FOR Georgia Power Company ACAD A2160315

EDWIN I. HATCH NUCLEAR POWER PLANT – UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H11-P603

Drawn: B Snow | Typed: JDM | Checked:

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21603	15	1

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
199	ARI	1/2"	3" x 1"	W-ON-R	
200	ARI SYSTEM TEST	3/16"	2" x 2-7/8"	B-ON-W	
201A	ARI ANNUNCIATOR	1/4"	3-1/2" x 1/2"	B-ON-W	
201B	ARI ANNUNCIATOR	1/4"	4" x 1/2"	B-ON-W	
202A					DELETED
202B					DELETED
203					INFO LABEL CONTENTS CONTROLLED BY OPS
204					INFO LABEL CONTENTS CONTROLLED BY OPS
205					DELETED
206					DELETED
207					INFO LABEL CONTENTS CONTROLLED BY OPS
208	RWM OPERATOR DISPLAY 2C11-J600	3/16"	2-5/8" x 1-1/4"	B-ON-W	

3

Rev.	Date	By	Description	Checked	Appr. 1
3	7-23-97	D.K.	REVISED PER ABN 94-0008-017.	HEW	CCS

Southern Company Services, Inc. for Georgia Power Company ACADR13 A2160316

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H11-P603

Drawn: B SNOW | Designed: JDM | Date:

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21603	16	3

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
	CORE DISPLAY MATRIX				
50		3/16'	3/4' x 3/4'	B-ON-W	
46		3/16'	3/4' x 3/4'	B-ON-W	
42		3/16'	3/4' x 3/4'	B-ON-W	
38		3/16'	3/4' x 3/4'	B-ON-W	
34		3/16'	3/4' x 3/4'	B-ON-W	
30		3/16'	3/4' x 3/4'	B-ON-W	
26		3/16'	3/4' x 3/4'	B-ON-W	
22		3/16'	3/4' x 3/4'	B-ON-W	
18		3/16'	3/4' x 3/4'	B-ON-W	
14		3/16'	3/4' x 3/4'	B-ON-W	
10		3/16'	3/4' x 3/4'	B-ON-W	
06		3/16'	3/4' x 3/4'	B-ON-W	
02		3/16'	3/4' x 3/4'	B-ON-W	
03		3/16'	3/4' x 3/4'	B-ON-W	
07		3/16'	3/4' x 3/4'	B-ON-W	
11		3/16'	3/4' x 3/4'	B-ON-W	
15		3/16'	3/4' x 3/4'	B-ON-W	
19		3/16'	3/4' x 3/4'	B-ON-W	
23		3/16'	3/4' x 3/4'	B-ON-W	
27		3/16'	3/4' x 3/4'	B-ON-W	

Rev.	Date	By	Checked	Description	Appr. 1	Appr. 2	Appr. 3	Appr. 4	Appr. 5
0	3-5-90	B.S.	JMR	APPROVED, ISSUED PER ABN 89-840 AND WCN 88-246-1	ABC	CEH	RBV	WD	JLM

Southern Company Services, Inc. for Georgia Power Company

EDWIN I. HATCH NUCLEAR POWER PLANT – UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H11-P603

Drawn: B Snow	Typed: JDM	Checked: JMR

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21603	17	0

COMP NO.	LABEL CONTENTS	LET-TER SIZE	PLATE DIMEN-SIONS (LxW)	COLOR CODING	NOTES
			CORE DISPLAY MATRIX		
31		3/16"	3/4" x 3/4"	B-ON-W	
35		3/16"	3/4" x 3/4"	B-ON-W	
39		3/16"	3/4" x 3/4"	B-ON-W	
43		3/16"	3/4" x 3/4"	B-ON-W	
47		3/16"	3/4" x 3/4"	B-ON-W	
51		3/16"	3/4" x 3/4"	B-ON-W	
209	APRM OPERATOR DISPLAY 2C51-K620A	3/16"	2-5/8" x 1"	B-ON-W	
	2R25-S063	1/8"			
210	APRM OPERATOR DISPLAY 2C51-K620B	3/16"	2-5/8" x 1"	B-ON-W	
	2R25-S063	1/8"			
211	RBM OPERATOR DISPLAY 2C51-K620C	3/16"	2-5/8" x 1"	B-ON-W	
	2R25-S063	1/8"			
212	RBM OPERATOR DISPLAY 2C51-K620D	3/16"	2-5/8" x 1"	B-ON-W	
	2R25-S063	1/8"			
213					DELETED
214					DELETED
215					DELETED
216					DELETED

1

Rev.	Date	By	Description	Checked	Appr. 1
1	7-23-97	D.K.	REVISED PER ABN 94-0008-017.	HEW	CCS

Southern Company Services, Inc. for Georgia Power Company ACADR13 A2160318

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H11-P603

Drawn: D.K. | Designed: JDM | Date:

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21603	18	1

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
5	RHR HX SERV WTR FLOW 2E11-R071	3/16"	1-3/4"x 1"	B-ON-W	LABEL ON LEFT
6	DOME TEMP 2T47-R070	3/16"	2-5/8"x 7/8"	B-ON-W	
8	SACRIFICIAL SHIELD EXIT TEMP 2T47-R071	3/16"	2-5/8" x 1-1/4"	B-ON-W	
9	UPPER SPHERE TEMP 2T47-R072	3/16"	2-5/8"x 7/8	B-ON-W	
10	PRESS 2T48-R071	3/16"	1-3/4"x 1"	B-ON-W	
11	CRD CAVITY TEMP 2T47-R073	3/16"	2-5/8"x 7/8"	B-ON-W	
12	WATER TEMP R072	3/16"	2-5/8"x 7/8"	B-ON-W	
13	LEVEL R070	3/16"	1-3/4"x 1/2"	B-ON-W	RESTRICTED SPACING
14	VAPOR TEMP R073	3/16"	2-5/8"x 7/8"	B-ON-W	
15	5 CIRCUIT PWR SPLY 2E11-K070	3/16"	2-5/8"x 7/8"	B-ON-W	LABEL ON RIGHT
19	RHR HX SERV WTR FLOW 2E11-K071	3/16"	2-5/8"x 7/8"	B-ON-W	LABEL ON LEFT
20	2P41-C001B	3/16"	2-5/8"x 7/8"	B-ON-W	
21	2C11-C001B	3/16"	2-5/8"x 7/8"	B-ON-W	
22	XFER SW 2C82-S70	3/16"	2-5/8"x 7/8"	B-ON-W	
23	XFER SW 2C82-S71	3/16"	2-5/8"x 7/8"	B-ON-W	

Rev.	Date	By	Checked	Description	Appr. 1	Appr. 2	Appr. 3	Appr. 4	Appr. 5
0	7-26-90	BAS	[illegible]	APPROVED, ISSUED PER ABN 90-296 (NO DCR)	ABC	WTB			

Southern Company Services, Inc. for Georgia Power Company

EDWIN I. HATCH NUCLEAR POWER PLANT - UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H21-P173

Drawn: B Snow | Typed: JDM | Checked:

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21725	01	0

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
24	REMOTE SHUTDOWN INST 2H21-P173	3/4"	23"x 2"	B-ON-W	CONDENSE SPACING TO FIT 23"
25	DRYWELL	1/2"	5" x 1"	B-ON-W	
26	SUPP CHAMB	1/2"	2" x 3"	B-ON-W	
27	2T48	1/2"	2" x 3"	B-ON-W	
28	PSW PUMP	1/2"	2" x 3"	B-ON-W	
29	CRD PUMP	1/2"	2" x 3"	B-ON-W	

2

2

ACAD A2172502

Rev.	Date	By	Checked	Description	Appr. 1	Appr. 2	Appr. 3	Appr. 4	Appr. 5
2	3-1-93	BAS	HW	REVISED PER ABN 92-0517	LRP	CEL			
1	11-27-90	BAS	KWH	REVISED PER ABN 90-573	JAH	DEK			
0	7-26-90	BAS	RLE	APPROVED, ISSUED PER ABN 90-296 (NO DCR)	ABC	WTB			

Southern Company Services, Inc. FOR Georgia Power Company

EDWIN I. HATCH NUCLEAR POWER PLANT – UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2H21-P173

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21725	02	2

Drawn: B Snow | Typed: JDM | Checked:

COMP NO.	LABEL CONTENTS	LET-TER SIZE	PLATE DIMEN-SIONS (LxW)	COLOR CODING	NOTES
1	TURB SPEED 2C82-R003	3/16"	1-3/4" x 1"	B-ON-W	
2	PF - LAMP/KEY PF - LIGHT ON SETPOINT OFF FLOW	1/4" 3/16"	2-1/2" x 1-1/2"	B-ON-W	1
3	CPLG END BRG HIGH TEMP	3/16"	2-5/8" x 7/8"	B-ON-W	
4	BRG OIL LOW PRESS	3/16"	2-5/8" x 7/8"	B-ON-W	
6	SDC SUCTION VLV 2E11-F009 2R24-S011	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
7	2E11-F006A 2R24-S011	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
8	COND PUMP 2E51-C002-1 2R24-S021	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
9	2C82-K1	3/16"	1-3/4" x 1"	B-ON-W	
10	2C82-R001	3/16"	1-3/4" 1"	B-ON-W	
11	TURBINE	1/4"	3-1/2" x 5/8"	B-ON-W	
12	GOV BRG HIGH TEMP	3/16"	2-5/8" x 7/8"	B-ON-W	
13	XFER SW 2C82-S7	3/16"	2-5/8" x 7/8"	B-ON-W	
14	2E51-F007 2R24-S012B	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
15	XFER SW 2C82-S53	3/16"	2-5/8" x 7/8"	B-ON-W	
16A	S/D CLG VLV	1/4"	3-1/2" x 5/8"	B-ON-W	

ACAD A2172601

Rev.	Date	By	Checked	Description	Appr. 1	Appr. 2	Appr. 3	Appr. 4	Appr. 5
0	7/26/90	BAS	RLB	APPROVED, ISSUED PER ABN 90-296 (NO DCR)	ASK	WTB			
1	2·5·96	CRP	DKM	APPROVED, ISSUED PER ABN 92-093-002	WMS				

Southern Company Services, Inc. for Georgia Power Company

EDWIN I. HATCH NUCLEAR POWER PLANT – UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2C82-P001

Drawn: B Snow | Typed: JDM | Checked:

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21726	01	1

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
16B	S/D CLG	1/2"	2-5/8" x 2"	B-ON-W	
17	2E11-F006C 2R24-S011	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
18	XFER SW 2C82-S52	3/16"	2-5/8" x 7/8"	B-ON-W	
19	BAROMETRIC CNDSR	1/4"	3-1/2" x 5/8"	B-ON-W	
20	VAC PUMP 2E51-C002-2 2R24-S021	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
21	XFER SW 2C82-S6	3/16"	2-5/8" x 7/8"	B-ON-W	
22	2C82-K2	3/16"	1-3/4" x 1"	B-ON-W	
23	FLOW CONTROL	1/4"	3-1/2" x 5/8"	B-ON-W	
24					1
25	TRIP	3/16"	2-5/8" x 7/8"	B-ON-W	
26	STEAM SUPPLY INBD ISOL VLV	3/8"	5" x 1-1/4"	B-ON-W	
27	TORUS INBD SUCTION VLV 2E51-F031 2R25-S021	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
28	TEST LINE TO CST 2E51-F022 2R24-S021	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	

ACAD A2172602

Rev.	Date	By	Checked	Description	Appr. 1	Appr. 2	Appr. 3	Appr. 4	Appr. 5
0	7/26/90	BAS	RLB	APPROVED, ISSUED PER ABN 90-296 (NO DCR)	ASK	WTB			
1	2-5-96	CRP	DfM	APPROVED, ISSUED PER ABN 92-093-002	WMD				

Southern Company Services, Inc. for Georgia Power Company

EDWIN I. HATCH NUCLEAR POWER PLANT – UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2C82-P001

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21726	02	1

Drawn: B Snow | Typed: JDM | Checked:

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
29A	STM TO TURB VLV 2E51 2R24-S021	1/4" 1/8"	3-1/2" x 1"	B-ON-W	
29B	DELETED				1
29C	VLV F045	3/16"	2-5/8" x 7/8"	B-ON-W	
30	CST SUCTION VLV 2E51-F010 2R24-S021	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
31	RCIC	1/2"	5" x 1"	B-ON-W	
32	2E51-F012 2R24-S021	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
33	PUMP	3/8"	2" x 1-1/4"	B-ON-W	
34	XFER SW 2C82-S4	3/16"	2-5/8" x 7/8"	B-ON-W	
35	TRIP & THROTTLE VLV 2E51-F524 2R24-S021	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
36	TURBINE	3/8"	2" x 1-1/4"	B-ON-W	
37	XFER SW 2C82-S5	3/16"	2-5/8" x 7/8"	B-ON-W	
38	MIN FLOW VLV 2E51-F019 2R24-S021	3/16" 1/8"	2-5/8" x 7/8"	B-ON-W	
39	XFER SW 2C82-S3	3/16"	2-5/8" x 7/8"	B-ON-W	

ACAD A2172603

REV.	DATE	BY	CHK'D	Description	AP. 1	AP. 2	AP. 3	AP. 4	AP. 5
1	1-5-96	TJS	JMB / GHB	REVISED PER ABN 94-0034-012.	SPS				
0	7-26-90	BAS	RLE	APPROVED, ISSUED PER ABN 90-296 (NO DCR).	ABC	WTB			

Southern Company Services, Inc. for Georgia Power Company

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2C82-P001

Drawn: B. Snow | Checked:

Continued on sheet

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21726	03	1

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
40	2C82-K002	3/16"	4" x 1"	B-ON-W	
41	DISCH VLV	1/4"	3-1/2"x 5/8"	B-ON-W	
41A	LEVEL 2C82-R005	3/16"	1-3/4" 1"	B-ON-W	
42	2E51-F013 2R24-S021	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	
42A	PRESS 2C82-R006	3/16"	1-3/4" 1"	B-ON-W	
43	TURB CLG WTR VLV 2E51-F046 2R24-S021	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	
44	TORUS OUTBD SUCTION VLV 2E51-F029 2R24-S021	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	
44A	NUC BLR	1/2"	5" x 1"	B-ON-W	
45	2C82-K10	3/16"	1-3/4" 1"	B-ON-W	
46	INSTM XFER SW 2C82-S18	3/16"	2-5/8"x 1-1/4"	B-ON-W	
47	LLS/MANUAL RELIEF VLV 2B21-F013F 125VDC CAB 2A	3/16" 1/8"	2-5/8"x 1"	B-ON-W	
47A	LLS/MANUAL RELIEF VLV 2B21-F013B 125VDC CAB 2A	3/16" 1/8"	2-5/8"x 1"	B-ON-W	1
48	XFER SW 2C82-S15	3/16"	2-5/8"x 7/8"	B-ON-W	
49	2E51-F008 2R24-S021	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	

Rev.	Date	By	Checked	Description	Appr. 1	Appr. 2	Appr. 3	Appr. 4	Appr. 5
1	2-22-94	RCR	SCP	REVISED PER ABN 94-0043-006	EJ				
0	7-26-90	BAS	RLE	APPROVED, ISSUED PER ABN 90-296 (NO DCR)	ABC	WTB			

Southern Company Services, Inc. for Georgia Power Company

EDWIN I. HATCH NUCLEAR POWER PLANT – UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2C82-P001

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21726	04	1

Drawn: B Snow | Typed: JDM | Checked:

COMP NO.	LABEL CONTENTS	LET-TER SIZE	PLATE DIMEN-SIONS (LxW)	COLOR CODING	NOTES
50	XFER SW 2C82-S2	3/16'	2-5/8' x 7/8'	B-ON-W	
51	STEAM SUPPLY OUTBD ISOL VLV	3/8'	5' x 1-1/4'	B-ON-W	
52	REMOTE SHUTDOWN 2C82-P001	1'	17-1/4' x 2'	B-ON W	
53	DEMARCATION ACCORDING TO TRANSFER SWITCH-CONTROL RELATIONSHIP	3/16'	5' x 7/8'	B-ON-W	
54	RHR & NUC BLR	1/2'	5' x 2'	B-ON-W	
56	RX HEAD SPRAY ISOL VLV 2E11-F023 2R24-S022	3/16' 1/8'	2-5/8' x 7/8'	B-ON-W	
58	2C82-R004	3/16'	1-3/4' x 1'	B-ON-W	
59	FLOW	3/8'	2' x 1-1/4'	B-ON-W	
60	XFER SW 2C82-S8	3/16'	2-5/8' x 7/8'	B-ON-W	
61	2E11-C002B 2R22-S007	3/16' 1/8'	2-5/8' x 7/8'	B-ON-W	

1

1

Rev.	Date	By	Checked	Description	Appr. 1	Appr. 2	Appr. 3	Appr. 4	Appr. 5
1	2-22-94	RCR	BAP	REVISED PER ABN 94-0043-006	EJJ				
0	7-26-90	BAS	RLE	APPROVED, ISSUED PER ABN 90-296 (NO DCR)	ABC	WTB			

Southern Company Services, Inc. for Georgia Power Company

EDWIN I. HATCH NUCLEAR POWER PLANT – UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2C82-P001

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21726	05	1

Drawn: B Snow | Typed: JDM | Checked:

COMP NO.	LABEL CONTENTS	LET-TER SIZE	PLATE DIMEN-SIONS (LxW)	COLOR CODING	NOTES
62	PUMP	3/8'	2' x 1-1/4'	B-ON-W	
63	XFER SW 2C82-S9	3/16'	2-5/8'x 7/8'	B-ON-W	
64	SDC SUCTION VLV 2E11-F008 2R24-S022	3/16' 1/8'	2-5/8'x 7/8'	B-ON-W	
65	XFER SW 2C82-S1	3/16'	2-5/8'x 7/8'	B-ON-W	
66	SUCTION VLV 2B31-F023B 2R24-S018B	3/16' 1/8'	2-5/8'x 7/8'	B-ON-W	
67	RECIRC PUMP	1/2'	5' x 1'	B-ON-W	
68	XFER SW 2C82-S16	3/16'	2-5/8'x 7/8'	B-ON-W	
69	MIN FLOW VLV	3/8'	2' x 1-1/4'	B-ON-W	
70	INBD INJ VLV 2E11-F015B 2R24-S018B	3/16' 1/8'	2-5/8'x 7/8'	B-ON-W	
71	TORUS SPRAY VLV 2E11-F027B 2R24-S012	3/16' 1/8'	2-5/8'x 7/8'	B-ON-W	
72	SERV WTR CROSSTIE VLV 2E11-F073B 2R24-S012	3/16' 1/8'	2-5/8'x 7/8'	B-ON-W	
73	2E11-F007B 2R24-S018B	3/16' 1/8'	2-5/8'x 7/8'	B-ON-W	
74	XFER SW 2C82-S80	3/16'	2-5/8'x 7/8'	B-ON-W	

Rev.	Date	By	Checked	Description	Appr. 1	Appr. 2	Appr. 3	Appr. 4	Appr. 5
0	7 2 1	BAS	[illegible]	APPROVED, ISSUED PER ABN 90-296 (NO DCR)	ABC	WTB			

Southern Company Services, Inc. for Georgia Power Company

EDWIN I. HATCH NUCLEAR POWER PLANT – UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2C82-P001

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21726	06	0

Drawn: B Snow | Typed: JDM | Checked:

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
75	OUTBD INJ VLV 2E11-F017B 2R24-S012B	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	
76	XFER SW 2C82-S13	3/16"	2-5/8"x 7/8"	B-ON-W	
77	OUTLET VLV 2E11-F003B 2R24-S012	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	
78	XFER SW 2C82-S12	3/16"	2-5/8"x 7/8"	B-ON-W	
79	RHR TORUS SPRAY OR TEST VLV 2E11-F028B 2R24-S012	3/16" 1/8"	2-5/8"x 1"	B-ON-W	
80	XFER SW 2C82-S14 1	3/16"	2-5/8"x 7/8"	B-ON-W	
81	SERV WTR PUMP 2E11-C001B 2R22-S007	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	
82	HX	1/4"	3-1/2"x 5/8"	B-ON-W	
83	BYPASS VLV 2E11-F048B 2R24-S012	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	
84	SERV WTR PUMP 2E11-C001D 2R22-S007	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	
85	SHUTDOWN CLG VLV 2E11-F006B 2R24-S012	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	
86	HX TO RCIC 2E11-F026B 2R24-S012	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	

Rev.	Date	By	Description	Checked	Appr. 1
1	2-07-03	RCR	REVISED PER ABN 02-0371.	PWG	ASK
			(SEE MICROFILM FOR PREVIOUS REVISION SIGNATURES)		

SOUTHERN COMPANY

ACADOVY A2172607

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2C82-P001

Drawn: B SNOW | Designed: – | Date: –

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21726	07	1

COMP NO.	LABEL CONTENTS	LETTER SIZE	PLATE DIMENSIONS (LxW)	COLOR CODING	NOTES
87	HX TO TORUS 2E11-F011B 2R24-S012	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	
88	TORUS SUCTION VLV 2E11-F004B 2R24-S012	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	
89	XFER SW 2C82-S10	3/16"	2-5/8"x 7/8"	B-ON-W	
90	INLET VLV 2E11-F047B 2R24-S012	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	
91	XFER SW 2C82-S17	3/16"	2-5/8"x 7/8"	B-ON-W	
92	FULL FLOW TEST LINE 2E11-F024B 2R24-S012	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	
93	XFER SW 2C82-S11	3/16"	2-5/8"x 7/8"	B-ON-W	1
95	DELETED				
96	HX	3/8"	2" x 1-1/4"	B-ON-W	
97	CNMT SPRAY OUTBD VLV 2E11-F016B 2R24-S012	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	
98	RHR	1/2"	5" x 1"	B-ON-W	
99	SHUTDOWN CLG VLV 2E11-F006D 2R24-S012	3/16" 1/8"	2-5/8"x 7/8"	B-ON-W	

ACAD A2172608

Rev.	Date	By	Checked	Description	Appr. 1	Appr. 2	Appr. 3	Appr. 4	Appr. 5
1	2-20-96	VEP	JAB	REVISED PER ABN 94-0032-004.	SRS				
0	7-26-90	BAS	HEW	APPROVED, ISSUED PER ABN 90-296 (NO DCR)	ABC	WTB			

Southern Company Services, Inc. FOR Georgia Power Company

EDWIN I. HATCH NUCLEAR POWER PLANT - UNIT No. 2
NAMEPLATE ENGRAVING LIST FOR
PANEL 2C82-P001

Drawn: B Snow | Typed: JDM | Checked:

PROJECT I.D.	DRAWING NUMBER	SHEET	REV.
10-502	A-21726	08	1

Revised by SNC per ABN H02887 Version 1.0	Document No.: Document Ver.:	**A-47039** **2.0**

By: PVK Checked: LCF Approved: RKF Date: 05/02/2013

DOCUMENT INSERTION SHEET

E. I. Hatch Nuclear Plant – Unit No. 1 / 2

LICENSE RENEWAL AGING MANAGEMENT
REVIEW SUMMARY

Description	Remove	Insert
1. This insertion sheet	Existing Sheet(s)	Front of Manual
2. Replace Review Summary Sheet 1 of 362 to correct error identified Per SNC460325, (pdf page 2 of 364)	Existing Sheet(s)	SNC Ver. 2.0
3. Replace Review Summary Sheet 171 of 363 to correct error identified Per SNC460325, (pdf page 172 of 364)	Existing Sheet(s)	SNC Ver. 2.0

LICENSE RENEWAL AGING MANAGEMENT REVIEW SUMMARY

Note:

This Aging Management Review Summary provides for compliance with 10 CFR 54.37(b) for E.I. Hatch Nuclear Plant (HNP) regarding inclusion of systems, structures, and components (SSCs) newly identified subsequent to issuance of the renewed operating license in the FSAR, as appropriate. This Aging Management Review Summary is incorporated by reference into the HNP FSAR.

The two key aspects of this document are:

1. LRA System description information regarding the intended functions performed by the system.
2. Aging management review (AMR) results for each LRA System within the scope of license renewal.

See NMP-ES-063 and sub-tier instructions for information on how to use this document.

TABLE OF CONTENTS

1 GENERAL INFORMATION

1.1 Introduction

This Aging Management Review Summary provides for compliance with 10 CFR 54.37(b) for E.I. Hatch Nuclear Plant (HNP) regarding inclusion of systems, structures, and components (SSCs) *newly identified* subsequent to issuance of the renewed operating license in the FSAR, as appropriate. This Aging Management Review Summary is incorporated by reference into the HNP FSAR.

The License Renewal Rule, Section 10 CFR 54.37 contains the following record-keeping requirements:

§54.37 Additional records and record-keeping requirements.

(a) The licensee shall retain in an auditable and retrievable form for the term of the renewed operating license all information and documentation required by, or otherwise necessary to document compliance with, the provisions of this part.

(b) After the renewed license is issued, the FSAR update required by 10 CFR 50.71(e) must include any systems, structures, and components newly identified that would have been subject to an aging management review or evaluation of time-limited aging analyses in accordance with §54.21. This FSAR update must describe how the effects of aging will be managed such that the intended function(s) in §54.4(b) will be effectively maintained during the period of extended operation.

1.2 Definitions

For use in the SNC process, the following key definitions are provided:

"***New LR Scope***" **SSCs** are those SSCs that were not included within the scope of license renewal at the time of the issuance of the renewed operating license, but which now:

I. Perform one or more of the intended functions described in 10 CFR54.4:

1. 10 CFR 54.4(a)(1) Safety Related Components
2. 10 CFR 54.4(a)(2) Non-safety Related Components potentially affecting Safety-Related Components
3. 10 CFR 54.4(a)(3) Relied on to demonstrate compliance with regulations for:
   - Fire Protection - 10 CFR 50.48
   - Environmental Qualification - 10 CFR 50.49
   - Pressurized Thermal Shock - 10 CFR 50.61
   - Anticipated Transients without SCRAM - 10 CFR 50.62
   - Station Blackout - 10 CFR 50.63

AND which are

II. Passive [10 CFR 54.21(1)] and long-lived [10 CFR 54.21(2)]

AND which were

III Already installed in the plant when the renewed license was issued on January 15, 2002.

In effect, “New LR Scope” SSCs are SSCs which would have been subject to aging management review if identified prior to issuance of the renewed operating license.

"***Newly Identified***" **SSCs** are those SSCs which meet criteria I, II, and III above, but also are determined (by review against this Aging Management Summary) not to have a previously documented system specific aging management review. That is, for the SSC's system, an aging management review item which addresses the component type, intended function(s), material(s), and environment(s) is not included in this Aging Management Summary. These newly identified SSCs must undergo aging management review, with the results added to this Aging Management Review Summary and the FSAR Supplement.

A newly identified determination may result from a CLB change, design change, Condition Report, or operating experience review. Once an SSC is determined to be newly identified through use of SNC procedures and this Aging Management Review Summary, new AMR results information must be added to this Aging Management Review Summary .

Other definitions applicable to this Aging Management Review Summary are contained in the SNC License Renewal Implementation Program, NMP-ES-063.

1.3 Content and Use

Sections 1.3.1 and 1.3.2 describe the general content of the two key aspects of this Aging Management Review Summary. Use information provided in this Aging Management Review Summary is not intended to specify the processes and procedures by which SNC personnel will enter information into this Aging Management Review Summary or perform 10 CFR 54.37(b) evaluations required to update this Aging Management Review Summary. See References 3.3.1, 3.3.2, 3.3.3, 3.3.5, 3.3.7, 3.3.9, and 3.3.11 for procedural guidance on the use of this Aging Management Review Summary.

1.3.1 System Identification Lists and System Description Information

Content

Section 2.0 of this Aging Management Review Summary identifies the systems included within the scope of license renewal (LRA Systems). For NRC review purposes, HNP systems were grouped / classified into LRA Systems that generally follow the systems outlined in NUREG-1800, Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants. Performance of aging management reviews on these higher level LRA Systems allows for less duplication of aging management reviews (AMRs).

Sections 2.1 through 2.6 contain LRA System description information regarding the intended functions performed by the system. This information is predominantly extracted from the License Renewal Application and is based on FSAR information.

The intent of the systems description information provided is to enable SNC personnel to make a determination as to which LRA System the New LR Scope SSC would have been grouped with in the Integrated Plant Assessment (IPA). The LRA System description information is not intended to define the extents of the license renewal boundary. It is a tool for identifying the proper LRA System bin for AMR purposes only. Scoping basis documentation and license renewal boundary drawings are available to identify the extent of the license renewal boundaries for each LRA System.

Only additions of new LRA Systems to the list of systems within the scope of license renewal are required. Deletions of systems specifically excluded from the scope of license renewal are NOT required.

Use

System listings and descriptions are used to determine if New LR Scope SSC(s) are addressed by an LRA System already within the scope of license renewal, or if inclusion of the SSC(s) will result in identification of a new LRA System within the scope of license renewal.

1.3.2 Aging Management Review Results

Content

Sections 2.1 through 2.6 contain aging management review (AMR) results for each LRA System within the scope of license renewal. These AMR results are presented in tabular form following the system description information for each LRA System. AMR results are presented at the same level of detail as originally contained in the LRA, as amended by docketed correspondence, which is the level of detail originally required for NRC staff acceptance.

When the LRA system is within the scope of license renewal for both Units 1 and 2, no distinction is made between the Units, and an AMR originally applicable only to one Unit may be applied to the alternate Unit without the need to revise this Aging Management Review Summary. AMRs have been performed for HNP:

- As part of the original license renewal process, with the results presented in the E.I. Hatch License Renewal Application,
- As part of the NRC review process, with results presented in SNC responses to NRC requests for additional information,

  And,
- Subsequent to issuance of the renewed operating license in accordance with SNC procedures and processes contained in References 3.3.1, 3.3.2, 3.3.3, 3.3.5, 3.3.7, 3.3.9, and 3.3.11.

The “Aging Management Review Results” Tables contain the following seven columns:

- **Column 1 – Component Type**

  This column identifies the component types requiring aging management review for the system or structure. Component types are generally based on the list of component types provided in Appendix B of NEI 95-10.

  Component types are in many cases "groupings" of system components (e.g. piping and fittings). For some key system components (e.g. pumps, heat exchangers, vessels), the component or assembly may be specifically identified.

- **Column 2 - Intended Function**

  This column identifies the applicable intended function(s) for each component type.

- **Column 3 – Material**

  This column identifies the material(s) of construction for each component type. Materials of construction are presented at a "material class" level (e.g. stainless steel, carbon steel) based upon similar aging effects requiring management, not at the "material grade" level (e.g. 304L, CF8, A193 B7).

- **Column 4 – Environment**

  This column identifies the environment(s) for each component type. Where applicable, environment subcategories have been utilized to clarify the specific environment for the component type. For example, raw water environment subcategories include river water, potable water, and drainage.

- **Column 5 - Aging Effects Requiring Management**

  This column identifies the aging effects requiring management for each component type, material, and environment combination. The aging effects requiring management are those effects that must be managed to maintain the intended function of the component type for the period of extended operation.

- **Column 6 - Aging Management Programs**

  This column identifies the aging management programs credited for each component type to demonstrate that the aging effects requiring management will be adequately managed such that the intended function of the component type will be maintained for the period of extended operation. An acceptable aging management program should consist of the 10 elements described in Appendix A of NUREG-1800, Revision 2.

  Reference 3.3.13 contains the set of site specific aging management programs credited for license renewal.

- **Column 7 - Comments**

  This column is used to identify AMR line items that were added or altered during the NRC review process, but prior to issuance of the renewed operating license. Subsequent to issuance of the renewed operating license, this column is used to identify "newly identified" SSC AMR items and provides reference to the engineering, licensing, or material replacement process which resulted in a "newly identified" conclusion. This column may also be used to provide clarifying or amplifying information to aid in understanding the aging management review issues encompassed by the line item.

Component functions, materials, environments, aging effects, and aging management programs are specifically defined for each site and used in the LRA. Reference 3.3.9 contains the site specific lists for these parameters, except for aging management programs that are listed in Reference 3.3.13.

AMR line items included within this Aging Management Review Summary are historical. As such, this Aging Management Review Summary will be updated only when new AMR line items are required. Removal of line items when SSCs are removed from the scope of license renewal is not required.

Use:

For all "New LR Scope" SSCs that are addressed by an LRA System within the scope of license renewal, the SSC is compared against the AMR Results tables contained in Sections 2.1 through 2.6 to determine if an applicable AMR line item already exists. An applicable AMR line item exists if the component type and material/environment combination(s) are shown in the appropriate LRA System AMR Results Table. If an applicable AMR line item exists, then the SSC is NOT "newly identified." If a new AMR line item must be added to the AMR Results table to address the SSC component type/material/environment combination, then the SCC is "newly identified."

Caution:

When using the Plant Hatch AMR Results Tables, the user should understand that component type/material/environment combinations having no aging effects are only listed when there were no aging effects for the other environments associated with the component type. For example, stainless steel piping exposed to reactor water and the inside environment will only display the reactor water environment and associated aging effects in the AMR Results Tables, since the AMRs prepared as a part of the original IPA process concluded no aging effects for stainless steels in the inside environment. The user should consider this structure when conducting comparisons of New LR Scope SSCs against the AMR Tables. When necessary, refer to the AMRs originally prepared as a part of the Plant Hatch process.

1.4 Development Methodology

Data contained in this Aging Management Review Summary includes a list of systems within the scope of license renewal, LRA System descriptions, and an AMR Results Table for each LRA System that is determined to be within the scope of license renewal. The LRA System description information is taken from the LRA, as amended during the NRC review process. These descriptions are based primarily upon FSAR descriptions, with additional information added as needed to address license renewal scope issues.

The AMR Results Tables are adapted from the LRA as amended during the NRC review process. Comment items are provided to identify the licensing correspondence, design change, or material change which required the addition of, or change to, the line item.

Effort has been made to incorporate the same level of detail into this Aging Management Review Summary that was originally required for NRC acceptance in the Safety Evaluation Report regarding E.I. Hatch License Renewal.

2 TECHNICAL INFORMATION

2.0 Systems and Structures Within the Scope of License Renewal

Technical information is provided in the following sections to identify and describe the LRA Systems included within the scope of license renewal, identify those HNP systems specifically excluded from the scope license renewal, and to identify completed AMRs for each HNP LRA System within the scope of license renewal.

Tables 2.0-1a through 2.0-1f below list the HNP systems and structures which are included within the scope of license renewal and for which AMRs have been performed. These Tables consist of 2 columns:

- **LRA System** Column 1 provides the “LRA System” name. SNC chose to identify HNP systems for license renewal at a high level consistent with an FSAR level discussion.

- **Desc. & AMR** Column 2 provides a reference to the ARM Summary section containing a system description and the AMR Results for each LRA System.

Table 2.0-1a Systems and Structures within the Scope of License Renewal – Reactor, Nuclear Boiler, and Reactor Recirculation Systems

LRA System	Description & AMR Results
Reactor Assembly System [B11] *Includes:* *Reactor Pressure Vessel* *Reactor Internals*	2.1.1
Nuclear Boiler System [B21]	2.1.2
Reactor Recirculation System [B31]	2.1.3

Table 2.0-1b Systems and Structures within the Scope of License Renewal – Engineered Safety Features

LRA System	Description & AMR Results
Standby Liquid Control System [C41]	2.2.1
Residual Heat Removal System [E11]	2.2.2
Core Spray System [E21]	2.2.3
High Pressure Coolant Injection System [E41]	2.2.4
Reactor Core Isolation Cooling System [E51]	2.2.5
Standby Gas Treatment System [T46]	2.2.6
Primary Containment Purge and Inerting Sys. [T48]	2.2.7
Post LOCA Hydrogen Recombining System [T49] (Unit 2 only)	2.2.8

Table 2.0-1c Systems and Structures within the Scope of License Renewal – Auxiliary Systems

LRA System	Description & AMR Results
Control Rod Drive System [C11]	2.3.1
Refueling Equipment System [F15]	2.3.2
Insulation System [L36]	2.3.3
Access Doors System [L48]	2.3.4
Condensate Transfer and Storage System [P11]	2.3.5
Sampling System [P33]	2.3.6
Plant Service Water System [P41]	2.3.7
Reactor Building Closed Cooling Water System [P42]	2.3.8
Instrument Air System Section [P52]	2.3.9
Primary Containment Chilled Water System [P64] (Unit 2 only)	2.3.10
Drywell Pneumatics System [P70]	2.3.11
Emergency Diesel Generators System [R43]	2.3.12
Cranes, Hoists and Elevator System [T31]	2.3.13
Tornado Vents System [T38]	2.3.14
Reactor Building HVAC System [T41]	2.3.15
Traveling Water Screens/Trash Racks System [W33]	2.3.16
Outside Structures HVAC System [X41]	2.3.17
Fire Protection System [X43]	2.3.18
Fuel Oil System [Y52]	2.3.19
Control Building HVAC System [Z41]	2.3.20

Table 2.0-1d Systems and Structures within the Scope of License Renewal - Steam and Power Conversion Systems

LRA System	Description & AMR Results
Electro-Hydraulic Control System [N32]	2.4.1
Main Condenser System [N61]	2.4.2

Table 2.0-1e Systems and Structures within the Scope of License Renewal – Structures and Component Supports

LRA System	Description & AMR Results
Piping Specialties [L35]	2.5.1
Conduits, Raceways, and Trays [R33]	2.5.2
Primary Containment [T23]	2.5.3
Fuel Storage [T24]	2.5.4
Reactor Building [T29]	2.5.5
Drywell Penetrations [T52]	2.5.6
Reactor Building Penetrations [T54]	2.5.7
Turbine Building [U29]	2.5.8
Intake Structure [W35]	2.5.9
Yard Structures [Y29]	2.5.10
Main Stack [Y32]	2.5.11
EDG Building [Y39]	2.5.12
Control Building [Z29]	2.5.13

Table 2.0-1f Systems and Structures within the Scope of License Renewal – Electrical Components

LRA System	Description & AMR Results
Analog Transmitter Trip System [A70]	2.6.1(a)
Nuclear Steam Supply Shutoff System [A71]	2.6.1(b)
Primary Containment Isolation System [C61]	2.6.1(c)
Reactor Protection System [C71]	2.6.1(d)
Remote Shutdown System [C82]	2.6.1(e)
Process Radiation Monitoring System [D11]	2.6.1(f)
Heat Trace System [G13]	2.6.1(g)
Plant AC Electrical System [R20]	2.6.1(h)
DC Electrical System [R42]	2.6.1(i)
Plant Communications System [R51]	2.6.1(j)
Power Transformers System [S11]	2.6.1(k)
Emergency Response Facilities System [X75]	2.6.1(l)
Electrical Panels, Racks, & Cabinets [H11]	2.6.2
Instruments Racks, Panels, & Enclosures [H21]	2.6.3

2.1 REACTOR, NUCLEAR BOILER, AND REACTOR RECIRCULATION SYSTEMS

The Reactor Assembly System, Nuclear Boiler System, and Reactor Recirculation Systems are addressed in the following Aging Management Summary sections:

- Reactor Assembly System, Section **2.1.1**
- Nuclear Boiler System, Section **2.1.2**
- Reactor Recirculation System, Section **2.1.3**

2.1.1 Reactor Assembly System [B11]

System Description

The reactor vessel has three major purposes:

- Contain core, internals and moderator.
- Serve as a high integrity barrier against leakage.
- Provide a floodable volume.

The reactor assembly consists of the reactor pressure vessel (RPV) and its internal components of the core, shroud, steam separator and dryer assemblies, and jet pumps. Also included in the reactor assembly are the control rods, control rod drive (CRD) housings, and the CRD. The RPV is a vertical, cylindrical pressure vessel with hemispherical heads of welded construction. The major reactor internal components are the core (fuel, channels, control blades, and instrumentation), the core support structure (including the core shroud, shroud head, separators, top guide, and core support), the steam dryer assembly, and the jet pumps. The reactor internal structural elements are stainless steel or other corrosion-resistant alloys.

The reactor vessel is located inside the primary containment building. The internal environment of the RPV is reactor water, normally at 533 °F and 1055 psia during plant operation. Water quality is maintained within the specified limits. During plant conditions that require the operation of the shutdown cooling mode of RHR, reactor water can be cooled to approximately 117 °F via the RHR heat exchangers and recirculated back to the reactor through the residual recirculating system (RRS) piping. During plant shutdown conditions, the water temperature in the RPV can be as low as 70°F.

Table 2.1-1 Reactor Assembly System [B11] - Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Program	Comments
Appurtenances	Pressure Boundary Fission Product Barrier Structural Support	Reactor Water	Nickel Based Alloy Stainless Steel	Cracking	Boiling Water Reactor Vessel and Internals Program Reactor Water Chemistry Control Component Cyclic or Transient Limit Program	Deleted Reactor Pressure Vessel Monitoring Program. Inspections are contained as a part of the Boiling Water Reactor Vessel and Internals Program as described in Chapter 18 of the FSAR. No changes to program criteria result.
Attachments and Connecting Welds	Pressure Boundary Fission Product Barrier Structural Support	Reactor Water	Carbon Steel Low Alloy Steel Nickel Based Alloy Stainless Steel	Cracking	Boiling Water Reactor Vessel and Internals Program Reactor Water Chemistry Control Component Cyclic or Transient Limit Program	Deleted Reactor Pressure Vessel Monitoring Program. Inspections are contained as a part of the Boiling Water Reactor Vessel and Internals Program as described in Chapter 18 of the FSAR. No changes to program criteria result.
Closure Studs	Pressure Boundary Fission Product Barrier	Reactor Water	Low Alloy Steel	Cracking	Boiling Water Reactor Vessel and Internals Program Component Cyclic or Transient Limit Program	Deleted Reactor Pressure Vessel Monitoring Program. Inspections are contained as a part of the Boiling Water Reactor Vessel and Internals Program as described in Chapter 18 of the FSAR. No changes to program criteria result.
Control Rod Drive	Pressure Boundary Structural Support	Reactor Water	Stainless Steel	Cracking	Inservice Inspection Program Reactor Water Chemistry Control	

Table 2.1-1 Reactor Assembly System [B11] - Aging Management Review Results

Core Spray Internal Piping	Pressure Boundary	Reactor Water	Stainless Steel	Cracking	Boiling Water Reactor Vessel and Internals Program Inservice Inspection Program Reactor Water Chemistry Control	
Core Spray Sparger	Pressure Boundary Flow Distribution	Reactor Water	Stainless Steel	Cracking	Boiling Water Reactor Vessel and Internals Program Inservice Inspection Program Reactor Water Chemistry Control	
CRD Housing and CR Guide Tubes	Structural Support	Reactor Water	Stainless Steel	Cracking	Boiling Water Reactor Vessel and Internals Program Inservice Inspection Program Reactor Water Chemistry Control	
Dry Tube Weld to Guide Tube	Pressure Boundary	Reactor Water	Stainless Steel	Cracking	Inservice Inspection Program Reactor Water Chemistry Control	
Jet Pump Assemblies	Pressure Boundary Structural Support	Reactor Water	Stainless Steel Cast Austenitic Stainless Steel	Cracking	Boiling Water Reactor Vessel and Internals Program Inservice Inspection Program Reactor Water Chemistry Control	

Table 2.1-1 Reactor Assembly System [B11] - Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Program	Comments
Nozzles	Pressure Boundary Fission Product Barrier Structural Support	Reactor Water	Low Alloy Steel	Cracking	Boiling Water Reactor Vessel and Internals Program Reactor Water Chemistry Control Component Cyclic or Transient Limit Program	Replaced the Reactor Pressure Vessel Monitoring Program with the Boiling Water Reactor Vessel and Internals Program as described in Chapter 18 of the FSAR. No changes to program criteria result.
Penetrations	Pressure Boundary Fission Product Barrier Structural Support	Reactor Water	Nickel Based Alloy Stainless Steel	Cracking	Boiling Water Reactor Vessel and Internals Program Reactor Water Chemistry Control	Replaced the Reactor Pressure Vessel Monitoring Program with the Boiling Water Reactor Vessel and Internals Program as described in Chapter 18 of the FSAR. No changes to program criteria result.
Safe Ends	Pressure Boundary Fission Product Barrier Structural Support	Reactor Water	Stainless Steel Low Alloy Steel Carbon Steel Nickel Based Alloy	Cracking	Boiling Water Reactor Vessel and Internals Program Reactor Water Chemistry Control Component Cyclic or Transient Limit Program	Replaced the Reactor Pressure Vessel Monitoring Program with the Boiling Water Reactor Vessel and Internals Program as described in Chapter 18 of the FSAR. No changes to program criteria result.

Table 2.1-1 Reactor Assembly System [B11] - Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Program	Comments
Shell and Closure Heads	Pressure Boundary Fission Product Barrier Structural Support	Reactor Water	Low Alloy Steel	Loss of Fracture Toughness	Reactor Pressure Vessel Material Surveillance Program Component Cyclic or Transient Limit Program	Replaced the Reactor Pressure Vessel Monitoring Program with the Reactor Pressure Vessel Material Surveillance Program as described in Chapter 18 of the FSAR. No changes to program criteria result.
Shroud	Pressure Boundary Structural Support	Reactor Water	Stainless Steel	Cracking	Boiling Water Reactor Vessel and Internals Program Inservice Inspection Program Reactor Water Chemistry Control	
Shroud Supports	Pressure Boundary Structural Support	Reactor Water	Stainless Steel Nickel Based Alloy Low Alloy Steel	Cracking	Boiling Water Reactor Vessel and Internals Program Inservice Inspection Program Reactor Water Chemistry Control	
Steam Dryer Assembly	Physical Integrity	Reactor Water	Stainless Steel	Cracking	Boiling Water Reactor Vessel and Internals Program	This item is conservatively added in response to OE following receipt of the renewed operating license. See letter NL-05-1298.

Table 2.1-1 Reactor Assembly System [B11] - Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Program	Comments
Thermal Sleeves	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel Nickel Based Alloy	Cracking	Boiling Water Reactor Vessel and Internals Program Reactor Water Chemistry Control Component Cyclic or Transient Limit Program	Replaced the Reactor Pressure Vessel Monitoring Program with the Boiling Water Reactor Vessel and Internals Program as described in Chapter 18 of the FSAR. No changes to program criteria result.
Top Guide	Structural Support	Reactor Water	Stainless Steel	Cracking	Boiling Water Reactor Vessel and Internals Program Inservice Inspection Program Reactor Water Chemistry Control	

2.1.2 Nuclear Boiler System [B21]

System Description

The nuclear boiler system is composed of several components and subsystems that are required to generate steam. Functions provided by the nuclear boiler system include supplying feedwater to the reactor, conducting steam from the reactor, reactor overpressure protection, and some reactor control and/or engineered safety feature functions. The nuclear boiler system is in operation any time the plant is in operation. Most of the major components in the system are part of the reactor coolant pressure boundary.

The system contains the following major components:

- Main steam lines (MSLs).
- Safety relief valves (SRVs).
- Main steam isolation valves (MSIVs).
- Feedwater lines.
- Feedwater line check valves.
- Instrumentation and controls.

Table 2.1-2 Nuclear Boiler System [B21] - Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting (Class 1)	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload	Torque Activities Inservice Inspection Program	
Bolting (non-Class 1)	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	
Crack Growth Monitor (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections	

Table 2.1-2 Nuclear Boiler System [B21] - Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Flow Nozzle (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Galvanic Susceptibility Inspections Component Cyclic or Transient Limit Program Flow Accelerated Corrosion Program Treated Water Systems Piping Inspections	
Main Steam Flow Restrictor – Pipe (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Galvanic Susceptibility Inspections Component Cyclic or Transient Limit Program Flow Accelerated Corrosion Program Treated Water Systems Piping Inspections	This line item was added in response to RAI 2.3.2 –NBS-2, SNC correspondence HL-5979, dated August 29, 2000.

Table 2.1-2 Nuclear Boiler System [B21] - Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Main Steam Flow Restrictor – Venturi	Flow Restriction	Reactor Water	Cast Austenitic Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Component Cyclic or Transient Limit Program	This line item was added in response to RAI 2.3.2 –NBS-2, SNC correspondence HL-5979, dated August 29, 2000.
Piping (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	Flow Accelerated Corrosion Program was removed in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000.
Piping (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections	
Piping (non-Class 1)	Pressure Boundary Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	

Table 2.1-2 Nuclear Boiler System [B21] - Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping (non-Class 1)	Pressure Boundary Fission Product Barrier	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Torus Submerged Components Inspection Program	Removed line item for Piping (non-class 1) – Torus Water – Carbon Steel in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000.
Piping (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Galvanic Susceptibility Inspections Component Cyclic or Transient Limit Program Flow Accelerated Corrosion Program Treated Water Systems Piping Inspections	
Piping (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections	

Table 2.1-2 Nuclear Boiler System [B21] - Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping (non-Class 1)	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	Inservice Inspection Program was removed in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000. Changed Piping to (non-Class 1). June 20, 2000 email from R.D. Baker to W.F. Burton.
Restricting Orifice (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Component Cyclic or Transient Limit Program Inservice Inspection Program Treated Water Systems Piping Inspections	
Thermowell (non-Class 1)	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	

Table 2.1-2 Nuclear Boiler System [B21] - Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Thermowell (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections	
Valve Bodies (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	Flow Accelerated Corrosion Program was removed in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000.
Valve Bodies (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections	
Valve Bodies (non-Class 1)	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Inservice Inspection Program Passive Component Inspection Activities	

Table 2.1-2 Nuclear Boiler System [B21] - Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Galvanic Susceptibility Inspections Component Cyclic or Transient Limit Program Flow Accelerated Corrosion Program Treated Water Systems Piping Inspections	
Valve Bodies (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections	

Table 2.1-2 Nuclear Boiler System [B21] - Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Cast Austenitic Stainless Steel	Loss of Material Cracking Loss of Fracture Toughness	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program	
Valve Bodies (non-Class 1)	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Valve Bodies (non-Class 1)	Pressure Boundary Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	
Component External Surfaces (< 200 °F)	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program

2.1.3 Reactor Recirculation System [B31]

System Description

The reactor recirculation system (RRS) is one of two core reactivity control systems. The RRS system is part of the reactor coolant pressure boundary. Therefore, it also functions to maintain the pressure boundary during normal operation, transients, and accident scenarios to prevent the release of radioactive liquid and gas.

RRS consists of two parallel loops, each consisting of a recirculation pump, suction and discharge block valves, piping, fittings, flow elements and connections supporting flow, and differential pressure instrumentation. The RRS interfaces with the residual heat removal (RHR) and reactor water cleanup (RWCU) systems to provide a flow-path in support of shutdown cooling, low pressure coolant injection (LPCI), RWCU, and reactor water level control functions.

HNP FSAR References

More information about this system may be found in Unit 1 FSAR Section 4.3 and Unit 2 FSAR subsection 5.5.1.

Table 2.1-3 Reactor Recirculation System [B31] - Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting (Class 1)	Fission Product Barrier Pressure Boundary	Containment Atmosphere	Carbon Steel	Loss of Preload Loss of Material Cracking	Inservice Inspection Program Torque Activities	
Flow Nozzle (Class 1)	Fission Product Barrier Pressure Boundary	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program	
Piping (Class 1)	Fission Product Barrier Pressure Boundary	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections	
Pump Casings and Cover (Class 1)	Fission Product Barrier Pressure Boundary	Reactor Water	Cast Austenitic Stainless Steel	Loss of Material Cracking Loss of Fracture Toughness	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program	

Table 2.1-3 Reactor Recirculation System [B31] - Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Thermowell (Class 1)	Fission Product Barrier Pressure Boundary	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections	
Valve Bodies (Class 1)	Fission Product Barrier Pressure Boundary	Reactor Water	Cast Austenitic Stainless Steel	Loss of Material Cracking Loss of Fracture Toughness	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program	
Valve Bodies (Class 1)	Fission Product Barrier Pressure Boundary	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections	

2.2 Engineered Safety Features

The Reactor Assembly System, Nuclear Boiler System, and Reactor Circulation Systems are addressed in the following sections:

- Standby Liquid Control System, Section **2.2.1**
- Residual Heat Removal System, Section **2.2.2**
- Core Spray System, Section **2.2.3**
- High Pressure Coolant Injection System, Section **2.2.4**
- Reactor Core Isolation Cooling System, Section **2.2.5**
- Standby Gas Treatment System, Section **2.2.6**
- Primary Containment Purge and Inerting System, Section **2.2.7**
- Post LOCA Hydrogen Recombining System, Section **2.2.8**

2.2.1 Standby Liquid Control System [C41]

System Description

The standby liquid control system assures reactor shutdown, from full power operation to cold subcritical, by mixing a neutron absorber with the primary reactor coolant. The system is designed for the condition when an insufficient number of control rods can be inserted from the full power setting. The neutron absorber is injected within the core zone in sufficient quantity to provide a sufficient margin for leakage or imperfect mixing. The system is not a scram or a backup scram system for the reactor; it is an independent backup system for the control rod drive (CRD) system.

HNP FSAR References

More information can be found on this system in Unit 2 FSAR subsection 4.2.3.

Table 2.2-1 Standby Liquid Control System [C41] - Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting	Pressure Boundary	Inside	Stainless Steel	Loss of Preload	Torque Activities	
Piping	Pressure Boundary	Borated Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	
Pump Accumulators	Pressure Boundary	Borated Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Protective Coatings Program	
Pump Casing	Pressure Boundary	Borated Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	
Tanks	Pressure Boundary	Borated Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	
Thermowell	Pressure Boundary	Borated Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	

Table 2.2-1 Standby Liquid Control System [C41] - Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies	Pressure Boundary	Borated Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	
Component External Surfaces (< 200 °F)	Pressure Boundary	Inside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program & Sect. 3.3.2.1.
Insulation	Protect and Insulate Components	Inside	Various Insulating Materials	Loss of Material Cracking Change in Material Properties	Equipment and Piping Insulation Monitoring Program	FSAR 18.3.4, Equipment and Piping Insulation Program HL-6002, Sect. VI. B.2.4, Equipment and Piping Insulation Monitoring Program. NUREG 1803, Sect. 3.1.21, Equipment and Piping Insulation Monitoring Program

2.2.2 Residual Heat Removal System [E11]

System Description

The residual heat removal (RHR) system is composed of several components and subsystems which are required to:

- Restore and maintain reactor vessel water level after a loss of coolant accident (LOCA);
- Limit temperature and pressure inside the containment after a LOCA;
- Remove heat from the suppression pool water; and
- Remove decay and residual heat from the reactor core to achieve and maintain a cold shutdown condition ; and
- Remove airborne particulates from the containment atmosphere after a LOCA.

Note that the RHR service water functions are included in E11.

The RHR system consists of four pumps and two heat exchangers divided into two loops of two pumps and one heat exchanger each, plus the associated instruments, valves, and piping. The RHR pumps take suction from the suppression pool or the reactor coolant recirculation loop. The pumps discharge into the recirculation loop, the suppression pool, the containment spray headers, the spent-fuel pool cooling and cleanup system, depending upon the desired mode of system operation. The RHR system interfaces with the recirculation system to provide a flow-path in support of shutdown cooling and low pressure coolant injection (LPCI). The RHR system is part of the reactor coolant pressure boundary; therefore, it also maintains the pressure boundary during normal operation, transients, and accident scenarios to prevent the release of radioactive liquid and gas.

The RHR system is cooled through the heat exchangers by the residual heat removal service water (RHRSW) system. The RHRSW takes suction from the Altamaha River. There are four RHRSW pumps per unit. The RHRSW system also serves as a standby coolant supply system by providing a means of injecting makeup water from the river to the RHR system to keep the core covered during an extreme emergency.

HNP FSAR References

More information about the RHR system may be found in Unit 1 FSAR Section 4.8 and Unit 2 FSAR subsection 5.5.7.

Table 2.2-2 Residual Heat Removal System [E11] – Aging Management Review Results

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity	Comments
Bolting	Pressure Boundary	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	
Bolting	Pressure Boundary	Inside	Stainless Steel	Loss of Preload	Torque Activities	
Conductivity Element	Pressure Boundary Fission Product Barrier	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections	
Heat Exchanger Channel Assembly	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Cracking Fouling Loss of Heat Exchanger Performance	RHR Heat Exchanger Augmented Inspection and Testing Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	

Table 2.2-2 Residual Heat Removal System [E11] – Aging Management Review Results

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity	Comments
Heat Exchanger Impingement Plate	Shelter/ Protection	Torus Water	Stainless Steel	Loss of Material Cracking Fouling Loss of Heat Exchanger Performance	RHR Heat Exchanger Augmented Inspection and Testing Program Suppression Pool Chemistry Control	
Heat Exchanger Shell	Pressure Boundary Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking Fouling Loss of Heat Exchanger Performance	RHR Heat Exchanger Augmented Inspection and Testing Program Inservice Inspection Program Suppression Pool Chemistry Control	
Heat Exchanger Tube Sheet	Pressure Boundary Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking Fouling Loss of Heat Exchanger Performance	RHR Heat Exchanger Augmented Inspection and Testing Program Suppression Pool Chemistry Control	

Table 2.2-2 Residual Heat Removal System [E11] – Aging Management Review Results

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity	Comments
Heat Exchanger Tube Sheet	Pressure Boundary	Raw Water	Stainless Steel Clad Carbon Steel	Loss of Material Cracking Fouling Loss of Heat Exchanger Performance	RHR Heat Exchanger Augmented Inspection and Testing Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	
Heat Exchanger Tubes	Pressure Boundary Fission Product Barrier Exchange Heat	Torus Water	Stainless Steel	Loss of Material Cracking Loss of Heat Exchanger Performance	RHR Heat Exchanger Augmented Inspection and Testing Program Suppression Pool Chemistry Control	
Heat Exchanger Tubes	Pressure Boundary Fission Product Barrier Exchange Heat	Raw Water	Stainless Steel	Loss of Material Cracking Fouling Loss of Heat Exchanger Performance	RHR Heat Exchanger Augmented Inspection and Testing Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	

Table 2.2-2 Residual Heat Removal System [E11] – Aging Management Review Results

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity	Comments
Piping	Pressure Boundary Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	
Piping	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Piping	Pressure Boundary	Buried	Carbon Steel with Coal Tar Enamel Coating	Loss of Material	ISI Program (VT-2) Protective Coatings Program	This line item was added in response to Open Item 3.1.13-1 (a), SNC correspondence HL-6092, dated June 5, 2001.
Piping	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking Loss of Heat Exchanger Performance	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Galvanic Susceptibility Inspections Structural Monitoring Program	

Table 2.2-2 Residual Heat Removal System [E11] – Aging Management Review Results

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity	Comments
Pump Casings	Pressure Boundary Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	
Pump Casings - Bowl Assembly	Pressure Boundary	Raw Water	Cast Austenitic Stainless Steel	Loss of Material Flow Blockage Loss of Heat Exchanger Performance	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	Cracking was removed as an AERM in response to email from R.D. Baker to W.F. Burton dated June 20, 2000.
Pump Column Discharge Head	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Galvanic Susceptibility Inspections Structural Monitoring Program	Cracking was removed as an AERM in response to email from R.D. Baker to W.F. Burton dated June 20, 2000.
Pump Sub Base	Structural Support	Inside	Carbon Steel	Loss of Material	Protective Coatings Program	

Table 2.2-2 Residual Heat Removal System [E11] – Aging Management Review Results

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity	Comments
Restricting Orifices	Pressure Boundary Fission Product Barrier	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspection	
Restricting Orifices	Pressure Boundary Fission Product Barrier Flow Restriction	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspection	
Restricting Orifices	Pressure Boundary Flow Restriction	Raw Water	Stainless Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	
Strainer Bodies	Debris Protection	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Galvanic Susceptibility Inspections Structural Monitoring Program	

Table 2.2-2 Residual Heat Removal System [E11] – Aging Management Review Results

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity	Comments
Strainer Basket	Debris Protection	Raw Water	Stainless Steel	Loss of Material Flow Blockage	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	Line item added in response to email from R.D. Baker to W.F. Burton, dated June 20, 2000.
Strainers	Debris Protection	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Torus Submerged Components Inspection Program	
Thermowell	Pressure Boundary Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections	
Tubing	Pressure Boundary	Raw Water	Copper Alloy	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	

Table 2.2-2 Residual Heat Removal System [E11] – Aging Management Review Results

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity	Comments
Valve Bodies	Pressure Boundary Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspection Treated Water Systems Piping Inspection	
Valve Bodies	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Galvanic Susceptibility Inspections Structural Monitoring Program	
Component External Surfaces (< 200 °F)	Pressure Boundary Fission Product Barrier	Inside Outside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program & Sect. 3.3.2.1.

Table 2.2-2 Residual Heat Removal System [E11] – Aging Management Review Results

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity	Comments
Insulation	Protect and Insulate Components	Inside	Various Insulating Materials	Loss of Material Cracking Change in Material Properties	Equipment and Piping Insulation Monitoring Program	FSAR 18.3.4, Equipment and Piping Insulation Program HL-6002, Sect. VI. B.2.4, Equipment and Piping Insulation Monitoring Program. NUREG 1803, Sect. 3.1.21, Equipment and Piping Insulation Monitoring Program

2.2.3 Core Spray System [E21]

System Description

The core spray (CS) system is one of the emergency core cooling systems (ECCSs) which protects the core from overheating in the event of a loss of coolant accident (LOCA). The CS system is a low pressure system. Actuation of the CS system results from low reactor vessel water level (level 1) or high drywell pressure or manual action. Injection valves to the reactor require a signal from the reactor low pressure permissive switches before opening to provide over-pressure protection to the system. The pumps take suction from the suppression pool and spray on the top of fuel assemblies to cool the core and limit the fuel cladding temperature. An alternate suction source for the CS system, the condensate storage tank (CST), is used primarily for providing reactor pressure vessel (RPV) makeup and an injection test supply during outages, and would not normally be used post accident. The CS system works in conjunction with low pressure coolant injection (LPCI).

The CS system has two independent loops. Each loop includes a 100% capacity centrifugal pump driven by an electric motor, a sparger ring in the reactor vessel above the core, piping, valves, and associated controls and instrumentation.

HNP FSAR References

The Core Spray System is described in Unit 1 FSAR subsection 6.4.3 and Unit 2 FSAR paragraph 6.3.2.2.3.

Table 2.2-3 Core Spray System [E21] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting	Pressure Boundary	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	
Bolting	Pressure Boundary	Inside	Stainless Steel	Loss of Preload	Torque Activities	
Piping	Pressure Boundary Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	
Pump Casings	Pressure Boundary Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspection	
Restricting Orifice	Pressure Boundary Fission Product Barrier Flow Restriction	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspection	

Table 2.2-3 Core Spray System [E21] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Strainers	Debris Protection	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Torus Submerged Components Inspection Program	
Valve Bodies	Pressure Boundary Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspection	
Component External Surfaces (< 200 °F)	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program & Sect. 3.3.2.1.
Insulation	Protect and Insulate Piping	Inside	Various Insulating Materials	Loss of Material Cracking Change in Material Properties	Equipment and Piping Insulation Monitoring Program	FSAR 18.3.4, Equipment and Piping Insulation Program HL-6002, Sect. VI. B.2.4, Equipment and Piping Insulation Monitoring Program. NUREG 1803, Sect. 3.1.21, Equipment and Piping Insulation Monitoring Program

2.2.4 High Pressure Coolant Injection System [E41]

System Description

The high pressure coolant injection (HPCI) system supplies makeup coolant into the reactor vessel from a fully pressurized to a preset depressurized condition. Demineralized makeup water is supplied from the condensate storage tank (CST) or treated water from the suppression pool. The flow rate of the system will maintain the reactor vessel coolant inventory until the reactor pressure drops sufficiently to permit the low pressure core cooling systems to automatically inject coolant into the vessel.

The HPCI system consists of a turbine driven pump train, piping, valves, and controls that provide a complete and independent emergency core cooling system (ECCS). A test line permits functional testing of the system during normal plant operation. A minimum flow bypass line bypasses pump discharge flow to the suppression pool to protect the pump in the event of a stoppage in the main discharge line. Reactor vessel steam is supplied to the turbine. Turbine exhaust steam is dumped to the suppression pool.

HNP FSAR References

The HPCI system is further described in the Unit 1 FSAR subsection 6.4.1 and Unit 2 FSAR paragraph 6.3.2.2.1.

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Table 2.2-4 High Pressure Coolant Injection System [E41] - Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	
Bolting	Pressure Boundary Fission Product Barrier	Inside	Stainless Steel	Loss of Preload	Torque Activities	
Flexible Connector	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	Environment changed to Wetted Gas in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000.
Piping	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Galvanic Susceptibility Inspections Flow Accelerated Corrosion Program Treated Water Systems Piping Inspection	Treated Water System Piping Inspection added in response to RAI 3.3-HPCI-1, SNC correspondence HL-6002 dated October 10, 2000; and in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000.

Table 2.2-4 High Pressure Coolant Injection System [E41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping	Pressure Boundary Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections Galvanic Susceptibility Inspections	Galvanic Susceptibility Inspections added in response to RAI 3.3-HPCI-2, SNC correspondence HL-6002 dated October 10, 2000.
Piping	Pressure Boundary Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Program Treated Water Systems Piping Inspections	
Piping	Pressure Boundary Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections Torus Submerged Components Inspection Program Protective Coatings Program	Torus Submerged Components Inspection Program and Protective Coatings Program added in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000

Table 2.2-4 High Pressure Coolant Injection System [E41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping	Pressure Boundary Fission Product Barrier	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Torus Submerged Components Inspection Program	
Piping	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Piping	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Piping	Pressure Boundary Fission Product Barrier	Buried	Stainless Steel	None	None Required	This line item was added in response to Open Item 3.1.13-1 (a), SNC correspondence HL-6092, dated June 5, 2001.
Piping	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections	
Pump Baseplate	Structural Support	Inside	Carbon Steel	Loss of Material	Protective Coatings Program	

Table 2.2-4 High Pressure Coolant Injection System [E41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Pump Casings	Pressure Boundary Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	
Restricting Orifice	Pressure Boundary Flow Restriction Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections	
Restricting Orifice	Pressure Boundary Flow Restriction Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Program Treated Water Systems Piping Inspections	Cracking added as an AERM in response to RAI 3.3-HPCI-5, SNC correspondence HL-6002 dated October 10, 2000.

Table 2.2-4 High Pressure Coolant Injection System [E41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Restricting Orifice	Pressure Boundary Flow Restriction Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Suction Strainer	Debris Protection	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Torus Submerged Components Inspection Program	
Thermowell	Pressure Boundary	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections	
Turbine	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Valve Bodies	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections	

Table 2.2-4 High Pressure Coolant Injection System [E41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies	Pressure Boundary Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	Treated Water Systems Piping Inspections added in response to RAI 3.3-HPCI-8, SNC correspondence HL-6002 dated October 10, 2000.
Valve Bodies	Pressure Boundary Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	
Valve Bodies	Pressure Boundary Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	
Valve Bodies	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	Passive Component Inspection Activities added in response to RAI 3.3-HPCI-9, SNC correspondence HL-6002 dated October 10, 2000.

Table 2.2-4 High Pressure Coolant Injection System [E41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Valve Bodies	Pressure Boundary Fission Product Barrier	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections	
Component External Surfaces (< 200 °F)	Pressure Boundary Fission Product Barrier	Inside Outside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program & Sect. 3.3.2.1.
Insulation	Protect and Insulate Piping	Inside	Various Insulating Materials	Loss of Material Cracking Change in Material Properties	Equipment and Piping Insulation Monitoring Program	FSAR 18.3.4, Equipment and Piping Insulation Program HL-6002, Sect. VI. B.2.4, Equipment and Piping Insulation Monitoring Program. NUREG 1803, Sect. 3.1.21, Equipment and Piping Insulation Monitoring Program

2.2.5 Reactor Core Isolation Cooling System [E51]

System Description

The reactor core isolation cooling (RCIC) system is a high pressure coolant makeup system which supports reactor shutdown when the feedwater system is unavailable. The RCIC system provides the capability of maintaining the reactor in a hot standby condition for an extended period. Normally, however, the RCIC system is used until the reactor pressure is sufficiently reduced to permit use of the shutdown cooling mode of the residual heat removal (RHR) system.

The RCIC system consists of a turbine driven pump, piping and valves, and the instrumentation necessary to maintain the water level in the reactor vessel above the top of the active fuel should the reactor vessel be isolated from normal feedwater flow.

HNP FSAR References

The system is described in the Unit 1 FSAR, Section 4.7 and Unit 2 FSAR subsection 5.5.6.

Table 2.2-5 Reactor Core Isolation Cooling System [E51] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	
Bolting	Pressure Boundary Fission Product Barrier	Inside	Stainless Steel	Loss of Preload	Torque Activities	
Flexible Connectors	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Piping	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Galvanic Susceptibility Inspections Flow Accelerated Corrosion Program Treated Water Systems Piping Inspections	

Table 2.2-5 Reactor Core Isolation Cooling System [E51] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping	Pressure Boundary Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	
Piping	Pressure Boundary Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	
Piping	Pressure Boundary Fission Product Barrier	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Torus Submerged Components Inspection Program	
Piping	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	

Table 2.2-5 Reactor Core Isolation Cooling System [E51] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Piping	Pressure Boundary Fission Production Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections	
Piping	Pressure Boundary Fission Production Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	
Piping	Pressure Boundary Fission Production Barrier	Buried	Stainless Steel	None	None Required	This line item was added in response to Open Item 3.1.13-1 (a), SNC correspondence HL-6092, dated June 5, 2001.
Pump Baseplate	Structural Support	Air	Carbon Steel	Loss of Material	Protective Coatings Program	

Table 2.2-5 Reactor Core Isolation Cooling System [E51] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Pump Casing	Pressure Boundary Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	
Restricting Orifices	Pressure Boundary Flow Restriction Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	
Restricting Orifices	Pressure Boundary Flow Restriction Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Steam Trap	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections Flow Accelerated Corrosion Program	

Table 2.2-5 Reactor Core Isolation Cooling System [E51] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Steam Trap	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Steam Trap	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections	
Steam Trap	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Strainer-Steam Exhaust	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Suction Strainer	Debris Protection	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Torus Submerged Components Inspection Program	

Table 2.2-5 Reactor Core Isolation Cooling System [E51] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Thermowell	Pressure Boundary Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	
Thermowell	Pressure Boundary Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	
Turbine	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Valve Bodies	Pressure Boundary Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	

Table 2.2-5 Reactor Core Isolation Cooling System [E51] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Flow Accelerated Corrosion Program Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	
Valve Bodies	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections	
Valve Bodies	Pressure Boundary Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	Cracking was added as an AERM in response to RAI 3.3-RCIC-7 and RAI 3.3-HPCI-5, SNC correspondence HL-6002 dated October 10, 2000.

Table 2.2-5 Reactor Core Isolation Cooling System [E51] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies	Pressure Boundary Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	
Valve Bodies	Pressure Boundary Fission Product Barrier	Torus Water	Cast Austenitic Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections	
Valve Bodies	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Valve Bodies	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	Passive Component Inspection Activities was removed in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000.

Table 2.2-5 Reactor Core Isolation Cooling System [E51] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Component External Surfaces (< 200 °F)	Pressure Boundary Fission Product Barrier	Inside Outside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program & Sect. 3.3.2.1.

2.2.6 Standby Gas Treatment System [T46]

System Description

The standby gas treatment system (SGTS) is an engineered safety feature (ESF) system for ventilation and cleanup of the primary and secondary containment during certain postulated design basis accidents (DBAs), and meets the design, quality assurance, redundancy, energy source, and instrumentation requirements for ESF systems. The SGTS is also used as a normal means of venting the drywell.

The major components of the SGTS include redundant filter trains, control valves, backdraft dampers, fans, and control instrumentation. Each of the filtration assemblies and their respective components are designed for 100-percent-capacity operation.

HNP FSAR References

Additional information may be found for this system in Unit 1 FSAR paragraph 5.3.3.3 and Unit 2 FSAR subsection 6.2.3.

Table 2.2-6 Standby Gas Treatment System [T46] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Damper (frame only)	Pressure Boundary Fission Product Barrier	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Fan Housing	Pressure Boundary Fission Product Barrier	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Filter Housing	Pressure Boundary Fission Product Barrier	Air	Galvanized Steel	Cracking	None Required	
Piping	Pressure Boundary Fission Product Barrier	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Piping	Pressure Boundary Fission Product Barrier	Air	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	

Table 2.2-6 Standby Gas Treatment System [T46] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping	Pressure Boundary Fission Product Barrier	Air	Copper	Loss of Material Cracking	Gas Systems Component Inspections	
Piping	Pressure Boundary Fission Product Barrier	Air	Galvanized Steel	Cracking	None Required	
Piping	Pressure Boundary Fission Product Barrier	Buried	Carbon Steel with Coal Tar Enamel Coating	Loss of Material	Protective Coatings Program	This line item was added in response to Open Item 3.1.13-1 (a), SNC correspondence HL-6092, dated June 5, 2001.
Rupture Disc	Pressure Boundary Fission Product Barrier	Air	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Thermowell	Pressure Boundary Fission Product Barrier	Air	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	

Table 2.2-6 Standby Gas Treatment System [T46] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies	Pressure Boundary Fission Product Barrier	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Valve Bodies	Pressure Boundary Fission Product Barrier	Air	Gray Cast Iron	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Valve Bodies	Pressure Boundary Fission Product Barrier	Air	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Valve Bodies	Pressure Boundary Fission Product Barrier	Air	Copper Alloy	Loss of Material Cracking	Gas Systems Component Inspections	

2.2.7 Primary Containment Purge and Inerting System [T48]

System Description

The primary containment purge and inerting system primarily provides and maintains an inert atmosphere in the primary containment for combustible gas control and fire protection. Plant Technical Specifications require that within 24 hours of reactor operation, the inerting system injects a sufficient amount of gaseous nitrogen into the drywell and torus so that the oxygen concentration falls below 4% by volume.

Major equipment for the purge and inerting system includes a purge air supply fan, liquid nitrogen storage tank, ambient vaporizer, steam vaporizer, vacuum breaker, valves, piping, controls, and instrumentation. The purge and inerting system provides containment vent paths to the standby gas treatment system which provides a vent path to the main stack for containment vent and purge operations.

HNP FSAR References

More information may be found in Unit 1 FSAR paragraph 5.2.3.8 and 9 and Unit 2 FSAR Section 6.2.

Table 2.2-7 Primary Containment Purge and Inerting System [T48]– Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting	Pressure Boundary	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	
Bolting	Pressure Boundary	Inside	Stainless Steel	Loss of Preload	Torque Activities	
Flex Hose	Pressure Boundary	Air	Stainless Steel	Cracking	Gas Systems Component Inspections	
Nitrogen Tank Jacket	Structural Support	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Piping	Pressure Boundary	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Torus Submerged Components Inspection Program Protective Coatings Program	Galvanic Susceptibility Inspections was removed in response to RAI 3.1.29-5, SNC correspondence HL-6002 dated October 10, 2000. Protective Coatings Program was added in response to RAI 3.3-P&I-1, SNC correspondence HL-6002 dated October 10, 2000; and in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000.

Table 2.2-7 Primary Containment Purge and Inerting System [T48]– Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping	Pressure Boundary	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections	
Piping	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required	
Piping	Pressure Boundary	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Pressure Buildup Coil	Pressure Boundary Exchange Heat	Dried Gas	Stainless Steel	Cracking	None Required	
Rupture Disc	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required	
Storage Tank	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required	
Thermowell	Pressure Boundary	Inside	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Valve Bodies	Pressure Boundary	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections	

Table 2.2-7 Primary Containment Purge and Inerting System [T48]– Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies	Pressure Boundary	Dried Gas	Carbon Steel	Cracking	None Required	
Valve Bodies	Pressure Boundary	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Vaporizer	Pressure Boundary Exchange Heat	Dried Gas	Stainless Steel	Cracking	None Required	
Component External Surfaces (< 200 °F)	Pressure Boundary Structural Support	Inside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program & Sect. 3.3.2.1.

2.2.8 Post LOCA Hydrogen Recombiners System [T49] (Unit 2 only)

System Description

The post loss of coolant accident (LOCA) hydrogen recombiner system ensures that hydrogen does not accumulate within the primary containment in combustible concentrations following a LOCA. This is accomplished by drawing primary containment atmosphere from the drywell and passing it through the recombiner where the hydrogen reacts with available oxygen to form water vapor. The recombiner discharge is to the suppression pool (torus).

The hydrogen recombiner system is part of the combustible gas control system and consists of two independent 100% capacity identical trains. Each train consists of three packages: the recombiner skid, the control console, and the power panel.

HNP FSAR References

More information can be found about this system in Unit 2 FSAR subsection 6.2.5.

Table 2.2-8 Post LOCA Hydrogen Recombiners System [T49] (Unit 2 only) – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	
Blower Casing	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line item is added as a result of Open Item 2.3.3.2-1 (a), SNC correspondence HL-6092, dated June 5, 2001.
Instrumentation	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections	This line item is added as a result of Open Item 2.3.3.2-1 (a), SNC correspondence HL-6092, dated June 5, 2001.
Instrumentation	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	This line item is added as a result of Open Item 2.3.3.2-1 (a), SNC correspondence HL-6092, dated June 5, 2001.
Piping	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	This line item is added as a result of Open Item 2.3.3.2-1 (a), SNC correspondence HL-6092, dated June 5, 2001.

Table 2.2-8 Post LOCA Hydrogen Recombiners System [T49] (Unit 2 only) – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Reaction Chamber	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	This line item is added as a result of Open Item 2.3.3.2-1 (a), SNC correspondence HL-6092, dated June 5, 2001.
Valve Bodies	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Valve Bodies	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Water Separator	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line item is added as a result of Open Item 2.3.3.2-1 (a), SNC correspondence HL-6092, dated June 5, 2001.

Table 2.2-8 Post LOCA Hydrogen Recombiners System [T49] (Unit 2 only) – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Water Spray Cooler	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	This line item is added as a result of Open Item 2.3.3.2-1 (a), SNC correspondence HL-6092, dated June 5, 2001.
Component External Surfaces (< 200 °F)	Pressure Boundary	Inside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program & Sect. 3.3.2.1.

2.3 Auxiliary Systems

The Auxiliary Systems are addressed in the following sections:

- Control Rod Drive System, Section **2.3.1**
- Refueling Equipment System, Section **2.3.2**
- Insulation System, Section **2.3.3**
- Access Doors System, Section **2.3.4**
- Condensate Transfer and Storage System, Section **2.3.5**
- Sampling System, Section **2.3.6**
- Plant Service Water System, Section **2.3.7**
- Reactor Building Closed Cooling Water System, Section **2.3.8**
- Instrument Air System Section **2.3.9**
- Primary Containment Chilled Water System, Section **2.3.10**
- Drywell Pneumatics System, Section **2.3.11**
- Emergency Diesel Generators System, Section **2.3.12**
- Cranes, Hoists and Elevator System, Section **2.3.13**
- Tornado Vents System, Section **2.3.14**
- Reactor Building HVAC System, Section **2.3.15**
- Traveling Water Screens/Trash Racks System, Section **2.3.16**
- Outside Structures HVAC System, Section **2.3.17**
- Fire Protection System, Section **2.3.18**
- Fuel Oil System, Section **2.3.19**
- Control Building HVAC System, Section **2.3.20**
- Turbine Building HVAC System, Section 2.3.21

2.3.1 Control Rod Drive (CRD) System [C11]

System Description

The CRD hydraulic system provides pressurized, demineralized water for the cooling and manipulation of the CRD mechanisms. In addition, the CRD system provides purge water for the reactor water cleanup (RWCU) pump and reactor recirculation pump seals.

The alternate rod insertion system is a subsystem of the CRD system. It is a backup means of scramming the reactor by venting the scram air header. It is completely independent of the reactor protection system (RPS) and was installed for the purpose of reducing the probability of an anticipated transient without scram (ATWS) event.

Water enters the CRD system from the condensate header downstream of the condensate demineralizers (normal suction) or from the condensate storage tank (CST) (alternate suction). The condensate header is the preferred suction source because the water contains less oxygen (deaerated) than water from the CST.

HNP FSAR References

More information about this system may be found in Unit 2 FSAR subsections 4.1.3 and 4.2.3.

Table 2.3-1 Control Rod Drive (CRD) System [C11] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Accumulator	Pressure Boundary Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	
Accumulator	Pressure Boundary Fission Product Barrier	Dried Gas	Carbon Steel	Cracking	None Required	
Bolting (Non-Class 1)	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	
Piping	Pressure Boundary Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	

Table 2.3-1 Control Rod Drive (CRD) System [C11] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping	Pressure Boundary Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	
Piping	Pressure Boundary Fission Product Barrier	Dried Gas	Stainless Steel	Cracking	None Required	
Piping	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Rupture Disc	Pressure Boundary Fission Product Barrier	Dried Gas	Stainless Steel	Cracking	None Required	

Table 2.3-1 Control Rod Drive (CRD) System [C11] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies	Pressure Boundary Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	
Valve Bodies	Pressure Boundary Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	
Valve Bodies	Pressure Boundary Fission Product Barrier	Dried Gas	Copper Alloy	Cracking	None Required	
Valve Bodies	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	

Table 2.3-1 Control Rod Drive (CRD) System [C11] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies	Pressure Boundary Fission Product Barrier	Air	Copper Alloy	Cracking	None Required	
Component External Surfaces (< 200 °F)	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program

2.3.2 Refueling Equipment System [F15]

System Description

The refueling platform equipment assembly is used for handling and transporting reactor core internals and service and handling equipment associated with the refueling operation. The refueling platform equipment assembly consists of the refueling platform, fuel grapple, grapple headlight, and the hardware required to assemble these components into a workable unit.

The refueling platform is a bridge structure that spans the refueling pool and the reactor well and travels on rails which extend the length of the fuel storage pool and the reactor well. A working platform extends the width of the bridge structure, providing working access to the entire width of the pools and reactor well area. The combination of the bridge movement for the length of the pool and the trolley movement for the width of the pool provides complete access to the open pool and reactor well. The movements of the bridge and trolley are displayed so that positions above known locations, such as the location of in-core fuel assemblies, can be repeatedly reproduced from dials on the trolley cab.

The fuel grapple extends downward, below the underside of the refueling platform, into the pool or reactor well. The telescoping grapple is extended or lowered by a fuel hoist. The position of the air-operated grapple is indicated in the control station.

HNP FSAR References

More information on refueling may be found in Unit 1 FSAR Section 7.6 and Unit 2 FSAR Section 9.1.

Table 2.3-2 Refueling Equipment System [F15] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Anchors and Bolts	Structural support Nonsafety Related Structural Support	Inside	Carbon steel	Loss of Material	Protective Coatings Program Overhead Crane and Refueling Platform Inspection Structural Monitoring Program	Structural Monitoring Program was added in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000.
Miscellaneous Steel	Structural support Nonsafety Related Structural Support	Inside	Carbon steel	Loss of Material	Protective Coatings Program Overhead Crane and Refueling Platform Inspection Structural Monitoring Program	Structural Monitoring Program was added in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000.
Rivets	Structural Support	Inside	Aluminum	None	None Required	
Structural Steel	Structural support	Inside	Carbon steel	Loss of Material	Protective Coatings Program Overhead Crane and Refueling Platform Inspection Structural Monitoring Program	Structural Monitoring Program was added in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000.

2.3.3 Insulation System [L36]

System Description

The purpose of insulation is to help retain heat in the process piping and equipment, to prevent moisture from condensing on cold surfaces, to protect equipment and personnel from high temperatures, to prevent piping from freezing in cold areas of the plant, and to protect heat tracing from damage. Insulation is required in conjunction with heat tracing. Insulation is also credited in heat load calculations for safety related rooms. Failure of this insulation could allow the heat load of the room to exceed the capability of the HVAC system, thus exceeding the design temperature of the room.

Table 2.3-3 Insulation System [L36] – Summary of Aging Management Review

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Aluminum Jacket	Environmental Control	Outside	Aluminum	Loss of Material Cracking	Equipment and Piping Insulation Monitoring Program	
Insulation	Environmental Control	Outside	Asbestos Calcium Silicate Fiberglass	Loss of Material Cracking Change in Material Properties	Equipment and Piping Insulation Monitoring Program	
Insulation	Environmental Control	Inside Outside	Ceramics Mineral Fiber	Loss of Material Cracking Change in Material Properties	Equipment and Piping Insulation Monitoring Program	
Insulation Bolting	Environmental Control	Outside	Galvanized Steel	Loss of Material Cracking	Equipment and Piping Insulation Monitoring Program	
Insulation Bolting	Environmental Control	Outside	Stainless Steel	Loss of Material Cracking	Equipment and Piping Insulation Monitoring Program	

Table 2.3-3 Insulation System [L36] – Summary of Aging Management Review

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Stainless Steel Jacket	Environmental Control	Inside	Stainless Steel	Loss of Material Cracking	Equipment and Piping Insulation Monitoring Program	Change in Material Properties was removed in response to RAI 3.4-IN-1, SNC correspondence HL-6002 dated October 10, 2000.
Wire for Insulation	Environmental Control	Outside	Carbon Steel	Loss of Material Cracking	Equipment and Piping Insulation Monitoring Program	

2.3.4 Access Doors System [L48]

System Description

The purpose of the secondary containment access doors is to provide access for personnel and equipment. The secondary containment provides, in conjunction with the primary containment and other engineering safeguards, the capability to limit the release to the environs of radioactive materials so that offsite dose from a postulated design basis accident will be below the guideline values of 10 CFR 100.

Table 2.3-4 Access Doors System [L48] – Summary of Aging Management Review

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Structural Steel	Missile Barrier Fission Product Barrier	Inside Outside	Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	

2.3.5 Condensate Transfer and Storage System [P11]

System Description

The condensate transfer and storage system provides the plant system makeup, receives reject flow, and provides condensate for any continuous service needs and intermittent batch-type services. The total stored design quantity is based on the demand requirements during refueling for filling the dryer separator pool and the reactor well.

A 500,000 gallon condensate storage tank (CST) supplies the various unit requirements. The system includes two condensate transfer pumps and associated piping and valves. The CST provides the preferred supply to the high pressure coolant injection (H PCI) and reactor core isolation cooling (RCIC) systems. All other suctions are located above suction lines for these systems to provide a 100,000 gallon reserve.

HNP FSAR References

The condensate transfer and storage system is described in Unit 1 FSAR Section 11.9 and Unit 2 FSAR subsection 9.2.6.

Table 2.3-5 Condensate Transfer and Storage System [P11] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting	Pressure Boundary	Outside	Stainless Steel	Loss of Preload	Torque Activities	
Piping	Pressure Boundary	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	
Tanks	Pressure Boundary	Demin Water	Aluminum	Loss of Material	Demineralized Water and Condensate Storage Tank Chemistry Control Condensate Storage Tank Inspection	
Tanks	Pressure Boundary	Demin Water	Galvanized Steel	Loss of Material	Demineralized Water and Condensate Storage Tank Chemistry Control Condensate Storage Tank Inspection	
Tanks	Pressure Boundary	Demin Water	Stainless Steel	Loss of Material	Demineralized Water and Condensate Storage Tank Chemistry Control Condensate Storage Tank Inspection	

Table 2.3-5 Condensate Transfer and Storage System [P11] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies	Pressure Boundary	Demin Water	Cast Austenitic Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspection	
Valve Bodies	Pressure Boundary	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspection	
Insulation	Protect and Insulate Piping	Outside	Various Insulating Materials and Jacketing	Loss of Material Cracking Change in Material Properties	Equipment and Piping Insulation Monitoring Program	FSAR 18.3.4, Equipment and Piping Insulation Program HL-6002, Sect. VI. B.2.4, Equipment and Piping Insulation Monitoring Program. NUREG 1803, Sect. 3.1.21, Equipment and Piping Insulation Monitoring Program

2.3.6 Sampling System [P33]

System Description

The purpose of the primary containment hydrogen and oxygen analyzing system is to provide a means of monitoring hydrogen and oxygen in the primary containment (drywell and torus).

The primary containment hydrogen and oxygen analyzing system consists of two separate, redundant systems, each capable of analyzing the hydrogen and oxygen content from the drywell or torus. Each analyzer channel is operated in parallel from separate penetrations in the drywell and torus. The sample is drawn through a sample cooler by the sample system inlet pump, then pumped to the hydrogen and oxygen analyzer cells. The sample is then returned to the primary containment by the sample system outlet pump.

HNP FSAR References

Additional information may be found in Unit 2 FSAR paragraph 6.2.4.3.3.2.

Table 2.3-6 Sampling System [P33] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Valve Bodies	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	

2.3.7 Plant Service Water System [P41]

System Description

The plant service water (PSW) system removes the heat generated by the operation of various systems (both safety related and nonsafety related). The PSW also provides makeup water to the plant circulating water system by supplying screened Altamaha river water to system heat exchangers. After traveling through the heat exchangers, the water is routed to the circulating water flume for use as flume makeup. The heat picked up by the water is rejected to the atmosphere via the plant cooling towers or to the river via the circulating water flume overflow. The PSW system water is also available for fire-fighting, radwaste dilution, and emergency spent fuel pool makeup.

The PSW system consists of four main pumps divided into two divisions of two pumps each. Each of the two divisions supplies one redundant train of safety-related equipment. After passing through isolation valves, the two safety-related headers merge into one header supplying nonsafety-related equipment. After servicing the various systems, the service water is discharged to a potential radioactive contaminant release path, and the discharge header is constantly monitored for activity.

HNP FSAR References

The PSW system is described in the Unit 1 FSAR Section 10.7 and Unit 2 FSAR subsection 9.2.1.

Table 2.3-7 Plant Service Water System [P41] – Summary of Aging Management Review

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting	Pressure Boundary	Inside Outside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	
Cooling Coil Tubing	Pressure Boundary	Raw Water	Copper Alloy	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Flexible Connector	Pressure Boundary	Raw Water	Stainless Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	
Piping	Pressure Boundary	Buried	Carbon Steel with Coal Tar Enamel Coating	Loss of Material	ISI Program (VT-2) Protective Coatings Program	This line item was added in response to Open Item 3.1.13-1 (a), SNC correspondence HL-6092, dated June 5, 2001.

Table 2.3-7 Plant Service Water System [P41] – Summary of Aging Management Review

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program Galvanic Susceptibility Inspections	
Piping	Pressure Boundary	Raw Water	Stainless Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	
Pump Bowl Assembly	Pressure Boundary	Raw Water	Cast Austenitic Stainless Steel	Loss of Material Flow Blockage	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	Cracking was removed as an AERM in response to email from R.D. Baker to W.F. Burton, dated June 20, 2000.
Pump Discharge Column	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	Cracking was removed as an AERM in response to email from R.D. Baker to W.F. Burton, dated June 20, 2000.

Table 2.3-7 Plant Service Water System [P41] – Summary of Aging Management Review

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Pump Discharge Head	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	Cracking was removed as an AERM in response to email from R.D. Baker to W.F. Burton, dated June 20, 2000.
Pump Sub Base	Structural Support	Inside	Carbon Steel	Loss of Material	Protective Coatings Program	
Restricting Orifices	Pressure Boundary Flow Restriction	Raw Water	Stainless Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	
Sight Glass Body	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Galvanic Corrosion Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	
Sight Glass Body	Pressure Boundary	Raw Water	Stainless Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	

Table 2.3-7 Plant Service Water System [P41] – Summary of Aging Management Review

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Strainer	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	
Strainer	Pressure Boundary	Raw Water	Gray Cast Iron	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	
Strainer Basket	Debris Protection	Raw Water	Stainless Steel	Loss of Material Flow Blockage	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	Cracking was removed as an AERM in response to email from R.D. Baker to W.F. Burton, dated June 20, 2000.
Strainer Basket	Debris Protection	Raw Water	Gray Cast Iron	Loss of Material Flow Blockage	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	Cracking was removed as an AERM in response to email from R.D. Baker to W.F. Burton, dated June 20, 2000.

Table 2.3-7 Plant Service Water System [P41] – Summary of Aging Management Review

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Thermowell	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	Structural Monitoring Program was added in response to RAI 3.4-PSW-6, SNC correspondence HL-6002 dated October 10, 2000.
Thermowell	Pressure Boundary	Raw Water	Stainless Steel	Loss of Material Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	Structural Monitoring Program was added in response to RAI 3.4-PSW-6, SNC correspondence HL-6002 dated October 10, 2000.
Valve Bodies	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program Galvanic Susceptibility Inspections	
Valve Bodies	Pressure Boundary	Raw Water	Stainless Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	

Table 2.3-7 Plant Service Water System [P41] – Summary of Aging Management Review

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies	Pressure Boundary	Raw Water	Copper Alloy	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program	PSW and RHRSW Inspection Program was added in response to RAI 3.4-PSW-2, SNC correspondence HL-6002 dated October 10, 2000; and in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000.
Venturi	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program Galvanic Susceptibility Inspections	
Component External Surfaces (< 200 °F)	Pressure Boundary Structural Support	Inside Outside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program

Table 2.3-7 Plant Service Water System [P41] – Summary of Aging Management Review

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Insulation	Protect and Insulate Piping	Outside	Various Insulating Materials and Jacketing	Loss of Material Cracking Change in Material Properties	Equipment and Piping Insulation Monitoring Program	FSAR 18.3.4, Equipment and Piping Insulation Program HL-6002, Sect. VI. B.2.4, Equipment and Piping Insulation Monitoring Program. NUREG 1803, Sect. 3.1.21, Equipment and Piping Insulation Monitoring Program

2.3.8 Reactor Building Closed Cooling Water System [P42]

System Description

The purpose of the reactor building closed cooling water (RBCCW) system is to provide cooling water to certain auxiliary equipment located in the reactor building.

The RBCCW system is a closed-loop cooling system consisting of three one-half capacity pumps, two full-capacity heat exchangers, a surge tank, and a chemical addition system. The cooling water is conveyed by the pumps to the various system coolers and returned to the pumps by way of the RBCCW heat exchanger. The heat rejected by the RBCCW system to the heat exchanger is removed by the plant service water (PSW) system.

HNP FSAR References

The RBCCW system is described in the Unit 1 FSAR Section 10.5 and Unit 2 FSAR subsection 9.2.2.

Table 2.3-8 Reactor Building Closed Cooling Water System [P42] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting	Pressure Boundary	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	
Flexible Connectors	Pressure Boundary	Closed Cooling Water	Stainless Steel	Loss of Material Cracking	Closed Cooling Water Chemistry Control Treated Water Systems Piping Inspections	
Flow Element	Pressure Boundary	Closed Cooling Water	Stainless Steel	Loss of Material Cracking	Closed Cooling Water Chemistry Control Treated Water Systems Piping Inspection	
Heat Exchanger Shells	Pressure Boundary	Closed Cooling Water	Carbon Steel	Loss of Material Cracking	Closed Cooling Water Chemistry Control Treated Water Systems Piping Inspection	
Piping	Pressure Boundary	Closed Cooling Water	Carbon Steel	Loss of Material Cracking	Closed Cooling Water Chemistry Control Treated Water Systems Piping Inspection	
Piping	Pressure Boundary	Closed Cooling Water	Stainless Steel	Loss of Material Cracking	Closed Cooling Water Chemistry Control Treated Water Systems Piping Inspection	

Table 2.3-8 Reactor Building Closed Cooling Water System [P42] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping	Pressure Boundary	Closed Cooling Water	Copper Alloy	Loss of Material Cracking	Closed Cooling Water Chemistry Control Treated Water Systems Piping Inspection	
Relief Valve Base	Pressure Boundary	Closed Cooling Water	Copper Alloy	Loss of Material Cracking	Closed Cooling Water Chemistry Control Treated Water Systems Piping Inspection	
Temperature Probe	Pressure Boundary	Closed Cooling Water	Copper Alloy	Loss of Material Cracking	Closed Cooling Water Chemistry Control Treated Water Systems Piping Inspection	
Thermowell	Pressure Boundary	Closed Cooling Water	Stainless Steel	Loss of Material Cracking	Closed Cooling Water Chemistry Control Treated Water Systems Piping Inspection	
Valve Bodies	Pressure Boundary	Closed Cooling Water	Carbon Steel	Loss of Material Cracking	Closed Cooling Water Chemistry Control Treated Water Systems Piping Inspection	
Valve Bodies	Pressure Boundary	Closed Cooling Water	Stainless Steel	Loss of Material Cracking	Closed Cooling Water Chemistry Control Treated Water Systems Piping Inspection	

Table 2.3-8 Reactor Building Closed Cooling Water System [P42] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Component External Surfaces (< 200 °F)	Pressure Boundary	Inside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program

2.3.9 Instrument Air System [P52]

System Description

The purpose of the instrument air system is to provide dried and filtered air to all of the air operated instruments and valves throughout the entire plant (with the exception of equipment inside the drywell).

The instrument air system is divided into the following two subsystems:

- Noninterruptible system provides instrument air for the operation of certain emergency system components.
- Interruptible system provides instrument air to all other components not supplied by the noninterruptible system.

The drywell pneumatic system supplies the motive gas for components within the drywell. The requirements for the remainder of the compressed air systems are supplied by three oil-free screw-type compressors. Each compressor discharges into an air receiver which in turn discharges into a common manifold that feeds the instrument and service air systems.

HNP FSAR References

Additional information may be found in Unit 1 FSAR Section 10.11 and Unit 2 FSAR subsection 9.3.1.

Table 2.3-9 Instrument Air System [P52] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Air Receiver	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required	
Bolting	Pressure Boundary	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	
Bolting	Pressure Boundary	Inside	Stainless Steel	Loss of Preload	Torque Activities	
Hose	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required	
Piping	Pressure Boundary	Dried Gas	Carbon Steel	Cracking	None Required	
Piping	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required	
Regulator Pressure	Pressure Boundary	Dried Gas	Carbon Steel	Cracking	None Required	
Restricting Orifice	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required	This line added for AST licensing amendments 256 (U1) and 200 (U2)
Tubing	Pressure Boundary	Dried Gas	Copper	Cracking	None Required	
Valve Bodies	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required	
Valve Bodies	Pressure Boundary	Dried Gas	Carbon Steel	Cracking	None Required	
Valve Bodies	Pressure Boundary	Dried Gas	Copper Alloy	Cracking	None Required	

Table 2.3-10 Primary Containment Chilled Water System [P64] (Unit 2 Only) – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Component External Surfaces (< 200 °F)	Pressure Boundary	Inside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program

2.3.10 Primary Containment Chilled Water System [P64] (Unit 2 Only)

System Description

The primary containment chilled water system is designed to maintain the drywell area below a maximum volumetric average temperature of 150 °F dry bulb during normal operation by providing chilled water to the drywell fan coil units. The primary containment chilled water system consists of two chilled water recirculation pumps, two centrifugal chillers, a chemical addition tank, a chemical feed pump, and an expansion tank. Each chiller consists of a refrigerant compressor, condenser, cooler, accessories, and controls. Each chilled water recirculation pump circulates chilled water through the respective chiller to the fan coil units. Service water from the reactor building service water system is circulated through the chiller condensers for cooling. Demineralized water provides a source of makeup water for the chilled water system. The expansion tank, chemical addition tank, and associated makeup water supply are shared with the reactor and radwaste building chilled water system.

HNP FSAR References

More information may be found in Unit 2 FSAR subsection 9.4.6

Table 2.3-10 Primary Containment Chilled Water System [P64] (Unit 2 Only) – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting	Pressure Boundary	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	
Cap	Pressure Boundary	Closed Cooling Water	Copper Alloy	Loss of Material Cracking	Closed Cooling Water Chemistry Control Treated Water Systems Piping Inspections	
Piping	Pressure Boundary	Closed Cooling Water	Carbon Steel	Loss of Material Cracking	Closed Cooling Water Chemistry Control Treated Water Systems Piping Inspections	
Thermowell	Pressure Boundary	Closed Cooling Water	Stainless Steel	Loss of Material Cracking	Closed Cooling Water Chemistry Control Treated Water Systems Piping Inspections	
Valve Bodies	Pressure Boundary	Closed Cooling Water	Carbon Steel	Loss of Material Cracking	Closed Cooling Water Chemistry Control Treated Water Systems Piping Inspections	

Table 2.3-10 Primary Containment Chilled Water System [P64] (Unit 2 Only) – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Component External Surfaces (< 200 °F)	Pressure Boundary	Inside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program

2.3.11 Drywell Pneumatics System [P70]

System Description

The drywell pneumatic system supplies motive gas to the following equipment inside the drywell: reactor recirculation system sample line isolation valve, reactor pressure vessel (RPV) head vent valve, core spray (CS) system injection testable check valves and bypass valves, primary containment chilled water system control valves, residual heat removal (RHR) system low pressure coolant injection (LPCI) check valves and bypass valves, and nuclear boiler system safety relief valves (SRVs), and main steam isolation valves (MSIVs).

A major portion of the drywell pneumatic system is primarily obsolete and not currently used. The control air is supplied from the nitrogen makeup system or instrument air. The system components still exist in the plant but are isolated by valve alignment or the lines are physically cut and capped.

The drywell pneumatic system receives motive gas from the Unit 1 or Unit 2 nitrogen storage tanks, the instrument air system, or the emergency nitrogen hookup stations. The system includes an air receiver, particulate filters, flow sensing elements, and various process piping, valves, and regulators.

Normally all system equipment upstream of the receiver tank is isolated, and system pressure is maintained by the nitrogen back-up supply with alternate supply through the instrument air supply system. Under emergency condition specific components in the drywell will be supplied control air from emergency nitrogen bottles.

Table 2.3-11 Drywell Pneumatics System [P70] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting	Pressure Boundary	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	
Bolting	Pressure Boundary	Inside	Stainless Steel	Loss of Preload	Torque Activities	
Filter Housings	Pressure Boundary	Dried Gas	Carbon Steel	Cracking	None Required	
Filter Housings	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required	
Flanges	Pressure Boundary	Dried Gas	Carbon Steel	Cracking	None Required	
Flexible Hoses	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required	
Piping	Pressure Boundary	Dried Gas	Carbon Steel	Cracking	None Required	
Piping	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required	
Tubing	Pressure Boundary	Dried Gas	Copper	Cracking	None Required	
Valve Bodies	Pressure Boundary	Dried Gas	Carbon Steel	Cracking	None Required	
Valve Bodies	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required	
Valve Bodies	Pressure Boundary	Dried Gas	Copper Alloy	Cracking	None Required	

Table 2.3-11 Drywell Pneumatics System [P70] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Component External Surfaces (< 200 °F)	Pressure Boundary	Inside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program

2.3.12 Emergency Diesel Generator System [R43]

System Description

The purpose of the diesel generators is to provide emergency backup power to 4160 VAC emergency buses E, F, and G in the event of a loss of loss of offsite power. The diesel generators are designed to reach rated speed and voltage within 12 seconds after receiving a start signal. This allows operation of emergency equipment powered from these buses to perform their required function to safely shutdown the plant within the required time.

The emergency diesel generator (EDG) provides a highly reliable source of standby, onsite, ac power. There are five diesel generators supplying standby power to 4.16 kV essential buses: 1E, 1F, 1G of Unit 1; and 2E, 2F, and 2G of Unit 2. Diesel generators 2A and 2C supply buses 2E and 2G respectively. Diesel generator 1B is shared between Units 1 and 2 and can supply power to either 1F or 2F. Diesel generator 1B has a selector switch with "Unit 1 control" and "Unit 2 control" positions, depending on whether it is supplying bus 1F or 2F. Diesel generators 1A and 1C supply buses 1E and 1G, respectively.

The generator field is supplied dc power by a static exciter. The exciter-regulator provides a controlled current to the generator field winding to maintain and control the generator output voltage.

In the automatic mode of voltage control, the generator output voltage is compared to a reference voltage to produce an error signal. Current transformers measure generator load and produce a proportional output. The load signal and voltage error signal are vectorally summed to produce an output which determines the generator field current and, thereby, the generator output voltage.

In the manual mode, the operator controls generator output voltage by adjusting the voltage control lever on the remote control panel. When the voltage balance relay is energized, the output voltage control is transferred from automatic to manual.

HNP FSAR References

Additional information may be found in Unit 1 FSAR Section 8.4 and Unit 2 FSAR Section 8.3.

Table 2.3-12 Emergency Diesel Generator System [R43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Expansion Tank	Pressure Boundary	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections Galvanic Susceptibility Inspections	
Filter housing	Pressure Boundary	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Flex Hose	Pressure Boundary	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	
Flexible Connector	Pressure Boundary	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	

Table 2.3-12 Emergency Diesel Generator System [R43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping	Pressure Boundary	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections Galvanic Susceptibility Inspections	
Piping	Pressure Boundary	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Piping	Pressure Boundary	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Piping	Pressure Boundary	Air	Galvanized Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Restricting Orifice	Pressure Boundary	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	

Table 2.3-12 Emergency Diesel Generator System [R43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Tanks	Pressure Boundary	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Valve Bodies	Pressure Boundary	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections Galvanic Susceptibility Inspections	
Valve Bodies	Pressure Boundary	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Valve Bodies	Pressure Boundary	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	

Table 2.3-12 Emergency Diesel Generator System [R43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies	Pressure Boundary	Wetted Gas	Copper Alloy	Loss of Material Cracking	Gas Systems Component Inspections	
Jacket Water Cooling Subsystem						
The Jacket Water Cooling Subsystem table is added in response to Open Item 2.3.3.2-1 (b), SNC correspondence HL-6092, dated June 5, 2001.						
Heater Housing	Pressure Boundary	Demin Water and Antifreeze	Carbon Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Heat Exchanger Shell	Pressure Boundary Heat Transfer	Demin Water and Antifreeze	Carbon Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Piping/Tubing	Pressure Boundary	Demin Water and Antifreeze	Carbon Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	

Table 2.3-12 Emergency Diesel Generator System [R43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping/Tubing	Pressure Boundary	Demin Water and Antifreeze	Copper	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Piping/Tubing	Pressure Boundary	Demin Water and Antifreeze	Stainless Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Pump Casing	Pressure Boundary	Demin Water and Antifreeze	Carbon Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Restricting Orifice	Flow Restriction	Demin Water and Antifreeze	Carbon Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Valve Bodies	Pressure Boundary	Demin Water and Antifreeze	Brass	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Valve Bodies	Pressure Boundary	Demin Water and Antifreeze	Bronze	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Valve Bodies	Pressure Boundary	Demin Water and Antifreeze	Carbon Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	

Table 2.3-12 Emergency Diesel Generator System [R43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies	Pressure Boundary	Demin Water and Antifreeze	Cast Iron	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Valve Bodies	Pressure Boundary	Demin Water and Antifreeze	Stainless Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Lubricating Oil Subsystem						
The Lubricating Oil Subsystem table is added in response to Open Item 2.3.3.2-1 (b), SNC correspondence HL-6092, dated June 5, 2001.						
Filter Housing	Pressure Boundary	Lube Oil	Carbon Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Heater Housing	Pressure Boundary	Lube Oil	Carbon Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	

Table 2.3-12 Emergency Diesel Generator System [R43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Heat Exchanger Shells	Pressure Boundary Heat Transfer	Lube Oil	Carbon Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Piping/Tubing	Pressure Boundary	Lube Oil	Carbon Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Piping/Tubing	Pressure Boundary	Lube Oil	Copper	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Pump Casing	Pressure Boundary	Lube Oil	Carbon Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Strainer Casing	Pressure Boundary	Lube Oil	Carbon Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Strainer Element	Component Protection	Lube Oil	Carbon Steel	Loss of Material	Diesel Generator Maintenance Activities	
Valve Bodies	Pressure Boundary	Lube Oil	Brass	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Valve Bodies	Pressure Boundary	Lube Oil	Bronze	Loss of Material Cracking	Diesel Generator Maintenance Activities	

Table 2.3-12 Emergency Diesel Generator System [R43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies	Pressure Boundary	Lube Oil	Carbon Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Valve Bodies	Pressure Boundary	Lube Oil	Cast Iron	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Heat Exchanger Components Containing Service Water or Air Subsystem						
The Heat Exchanger Components Containing Service Water or Air subsystem table is added in response to Open Item 2.3.3.2-1 (b), SNC correspondence HL-6092, dated June 5, 2001.						
Bolting (applies to all three EDG subsystems)	Pressure Boundary	Moist Air	Alloy Steel	Loss of Material Loss of Preload	Torque Activities Plant Coatings Program	
Bolting (applies to all three EDG subsystems)	Pressure Boundary	Moist Air	Carbon Steel	Loss of Material Loss of Preload	Torque Activities Plant Coatings Program	

Table 2.3-12 Emergency Diesel Generator System [R43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Heat Exchanger Shell	Pressure Boundary Heat Transfer	Moist Air	Carbon Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Piping/Tubing	Pressure Boundary Heat Transfer	Raw Water	Admiralty Brass	Loss of Material Cracking Loss of Heat Exchanger Performance	Diesel Generator Maintenance Activities	
Piping/Tubing	Pressure Boundary Heat Transfer	Raw Water	Copper-Nickel Alloy	Loss of Material Cracking Loss of Heat Exchanger Performance	Diesel Generator Maintenance Activities	
Piping/Tubing	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Piping/Tubing	Pressure Boundary	Raw Water	Stainless Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	

Table 2.3-12 Emergency Diesel Generator System [R43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Pump Casing	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Valve Bodies	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Valve Bodies	Pressure Boundary	Raw Water	Copper	Loss of Material Cracking	Diesel Generator Maintenance Activities	
Valve Bodies	Pressure Boundary	Raw Water	Stainless Steel	Loss of Material Cracking	Diesel Generator Maintenance Activities	

2.3.13 Cranes, Hoists and Elevators System [T31]

System Description

The reactor building crane is the only inscope component for this system. The purpose of the reactor building crane is to provide the capability for moving major components for refueling operations and maintenance.

The Unit 1 reactor building crane provides service to both Unit 1 and Unit 2. Capability includes the handling of shield plugs, reactor vessel heads, drywell heads, steam dryers, steam separators, and the spent-fuel shipping cask. The reactor building crane main and auxiliary hooks have an electrical interlock system to prevent their potential movement over spent fuel.

HNP FSAR References

Additional information may be found in Unit 1 FSAR Section 10.20 and Unit 2 FSAR Section 9.1.

Table 2.3-13 Cranes, Hoists and Elevators System [T31] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Structural Steel	Structural Support	Inside	Carbon Steel	Loss of Material	Overhead Crane and Refueling Platform Inspection Structural Monitoring Program Protective Coatings Program	Structural Monitoring Program was added in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000.

2.3.14 Tornado Vents System [T38]

System Description

The purpose of the tornado vents is to act as blowout panels for venting the reactor and control building roofs under the following conditions:

- Against a wind velocity of 300 mph.
- When the internal static pressure in the building is increased to 55 lb/ft^2.
- When the temperature reaches approximately 212 °F.

A rapid depressurization of air surrounding site structures can occur if a tornado funnel suddenly engulfs a structure. Venting is accomplished by placing blowout panels, designed to fail at a pressure lower than the safe building capability for internal pressure, to relieve excess pressure in all essential parts of such structures.

HNP FSAR References

Additional information may be found in Unit 2 FSAR paragraph 3.3.2.3.

Table 2.3-14 Tornado Vents System [T38] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Screws	Structural Support	Inside Outside	Stainless Steel	None	None Required	
Support Frame	Structural Support	Inside Outside	Aluminum	None	None Required	
Tornado Relief Vent Dome	Fission Product Barrier	Inside Outside	Acrylic (Plexiglas G Cellcast Acrylic Polymer)	Cracking	Structural Monitoring Program	

2.3.15 Reactor Building HVAC System [T41]

System Description

The purposes of the reactor building HVAC system are to:

- Provide an environment with controlled temperature and airflow to ensure the comfort and safety of operating personnel and to optimize equipment performance by the removal of the heat dissipated from the plant equipment.
- Promote air movement from operating areas and areas of lower airborne radioactivity potential to areas of greater airborne radioactivity potential prior to final filtration and exhaust.
- Minimize the release of potential airborne radioactivity to the environment during normal plant operation by exhausting air, through a filtration system, from the areas in which a significant potential for radioactive particulates and/or radioiodine contamination exists.
- Provide a source of cooling to support the operation of the emergency core cooling systems (ECCS).
- Provide isolation capability to maintain secondary containment integrity and support operation of the standby gas treatment system (SGTS).

The reactor building HVAC system utilizes a combination of air conditioning, heating, and once-through ventilation. Heat removal is provided by the ventilation air and by the chilled-water (Unit 2 only) and service-water cooling coils served by the reactor and radwaste building chilled water system and the plant service water (PSW) system, respectively. Hot water heating coils, served by the plant heating system, are provided for heating.

HNP FSAR References

Additional information may be found in Unit 1 FSAR Section 10.9 and Unit 2 FSAR subsection 9.4.2.

Table 2.3-15 Reactor Building HVAC System [T41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	
Cooling Coil Tubing	Pressure Boundary	Raw Water	Copper Alloy	Loss of Material Cracking Loss of Heat Exchanger Performance	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Damper (frame only)	Pressure Boundary	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Ductwork	Pressure Boundary Fission Product Barrier	Air	Galvanized Steel	Cracking	None Required	

Table 2.3-15 Reactor Building HVAC System [T41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Fan Housing	Pressure Boundary	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Fan Inlet Housing	Pressure Boundary	Air	Aluminum	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Fan Inlet Screen	Protection from Debris	Inside	Aluminum	Loss of Material	Gas Systems Component Inspections Passive Component Inspection Activities	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Flow Element	Pressure Boundary	Air	Stainless Steel	Cracking	Gas Systems Component Inspections	
Tubing	Pressure Boundary	Air	Copper Alloy	Loss of Material Cracking	Gas Systems Component Inspections	

Table 2.3-15 Reactor Building HVAC System [T41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Component External Surfaces (< 200 °F)	Pressure Boundary	Inside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program

2.3.16 Traveling Water Screens/Trash Racks System [W33]

System Description

The purpose of the traveling water screens is to prevent debris from entering the portion of the intake structure from which the pumps take suction.

Larger debris are prevented from reaching the screens by the trash racks. The screen system is composed of two traveling screens, two motors, and two screen wash lines which operate in parallel to serve the common bay from which both the Unit 1 and Unit 2 pumps take suction. The specifications for both the trash racks and traveling screens require that they maintain their structural integrity following a design basis earthquake (DBE). Therefore, the pumps would continue to be protected from river debris by both the trash racks and the screens.

The normal environment for the traveling screens and trash racks is submerged in river water.

Table 2.3-16 Traveling Water Screens/Trash Racks System [W33] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting	Pressure Boundary	Outside	Carbon Steel	Loss of Material Loss of Preload	Torque Activities Protective Coatings Program	This line item added in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000.
Trash Rack	Debris Protection	Submerged	Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Traveling Screen	Debris Protection	Submerged	Carbon Steel Stainless Steel	Loss of Material	Structural Monitoring Program	
Traveling Screen	Debris Protection	Submerged	Copper Alloy	None	None Required	
Valve Bodies	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Galvanic Susceptibility Inspections	
Component External Surfaces (< 200 °F)	Pressure Boundary	Outside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program

Table 2.3-16 Hydrogen Control System – Aging Management Review Results

2.3.17 Outside Structures HVAC System [X41]

System Description

The purpose of the intake structure HVAC system is to protect the intake structure equipment from adverse temperature conditions that could affect the reliability of the equipment. The diesel generator building HVAC system protects diesel generator building equipment from adverse temperature conditions that could affect the reliability of the equipment.

The river intake structure HVAC system consists of roof-mounted exhaust ventilators, gravity-operated louvers, and wall-mounted unit heaters. The ventilators are powered from separate power sources. Each ventilator has a separate control station and is operated by an individual thermostat. The independent controls are powered from the motor control center (MCC) control transformer for the associated fan. Since selected plant service water (PSW) pumps operate during normal and accident conditions in the plant, the thermostats and the individual fan control stations are located in the Unit 1 and Unit 2 PSW pump bay areas. The locations of the thermostats ensure the ventilation system is always activated when operation of the PSW pumps causes a heat buildup in the area. The unit heaters and their associated thermostats are strategically located at different areas of the building to provide adequate area coverage for maintaining the building above freezing temperatures.

The diesel generator rooms' heating and ventilating systems consist of a power roof exhaust ventilator in each room for exhausting heat from the rooms when the generator is shut down and two 100% capacity power roof exhaust ventilators in each room for exhausting heat from the rooms during generator actuation. Two motor-operated wall air intake louvers, with fire dampers in each room, replenish the air removed by the exhaust ventilation. One louver serves as the air intake to the generator area; the other serves as the air intake to the battery rooms through the generator area.

HNP FSAR References

Additional information about the system may be found in Unit 2 FSAR subsections 9.4.5 and 9.4.10.

Table 2.3-17 Outside Structures HVAC System [X41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting	Pressure Boundary	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	
Bolting	Pressure Boundary	Outside	Stainless Steel	Loss of Preload	Torque Activities	
Damper (frame only)	Pressure Boundary	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Duct Sleeve	Pressure Boundary	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Fan Housing	Pressure Boundary	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Restricting Orifices	Pressure Boundary	Air	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Tubing	Pressure Boundary	Air	Copper	Loss of Material Cracking	Gas Systems Component Inspections	

Table 2.3-17 Outside Structures HVAC System [X41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Unit Heater Housing	Flow Direction	Inside	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Component External Surfaces (< 200 °F)	Pressure Boundary	Inside Outside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program

2.3.18 Fire Protection System [X43]

System Description

The fire protection program assures, through a defense-in-depth design, that a fire will not prevent the necessary safe plant shutdown functions from occurring. Increases in the risk of radioactive releases to the environment could occur without the fire protection program. The program consists of detection and extinguishing systems, administrative controls and procedures, and trained personnel. The defense-in-depth principle is aimed at achieving an adequate balance in these areas along with:

- Preventing fires from starting,
- Detecting fires quickly, rapidly suppressing fires that occur and limiting their damage, and
- Designing plant safety systems so that a fire which starts in spite of the fire protection program and burns for a significant period of time will not prevent essential plant safety functions from being performed.

Primary design consideration is given to locating redundant safe shutdown circuits and components in distinct areas separated by fire barriers which prevent the propagation of fire to adjacent areas. The barriers are designed to contain a design basis fire which totally involves the combustibles in the given area.

A state-of-the-art, early warning fire detection multiplex system is utilized. The system is configured around master/slave concept linked to a common command center. All devices (e.g., detectors, tamper switches, pressure switches, etc.) are wired to their respective slave panels. Signals from each of these devices are grouped according to their originating detection zone. There are approximately 260 detection zones throughout both units.

Water supply for the fire protection system inside the protected area is provided by two 300,000 gallon dedicated storage tanks. The tanks are supplied by two deep wells, each with a 700 gpm makeup pump, capable of refilling either tank within 8 hours. These water supplies are strained and filtered for normal makeup.

There are three fire pumps, two diesel engine driven and one electric motor driven. Each pump is rated for 2500 gpm capacity at 125 psi. A single 70 gpm, 125 psig pressure maintaining pump (jockey pump) is provided to keep the system filled and pressurized during low flow draw offs and in the event of system leakage.

Additional information may be found in the Hatch Fire Hazards Analysis (FHA).

Table 2.3-18 Fire Protection System [X43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting	Pressure Boundary	Inside Outside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	
Fire Damper	Pressure Boundary Fire Barrier	Air	Carbon Steel	Loss of Material Cracking	Fire Protection Activities	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Fire Doors	Fire Barrier	Inside	Carbon Steel	Loss of Material	Fire Protection Activities	
Fire Doors	Fire Barrier	Inside	Galvanized Steel Copper Alloy Stainless Steel Aluminum Nonmetallic, Inorganic Gypsum Fibers, Nonasbestos Synthetic Nonmetallic, Organic	None	None Required	

Table 2.3-18 Fire Protection System [X43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Fire Hydrants	Pressure Boundary	Raw Water	Cast Iron	Loss of Material Cracking Flow Blockage	Fire Protection Activities	
Fittings	Pressure Boundary	Raw Water Air	Cast Iron	Loss of Material Cracking Flow Blockage	Fire Protection Activities	
Fittings	Pressure Boundary	Air	Copper Alloy Cast Iron	Loss of Material Cracking	Fire Protection Activities	
Fusible Material	Pressure Boundary	Inside	Nonferrous Metal	Loss of Material Cracking	Fire Protection Activities	

Table 2.3-18 Fire Protection System [X43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Kaowool and Hold-Down Straps	Fire Barrier	Inside	Galvanized Steel Insulation Material	Loss of Material Change in Material Properties	Fire Protection Activities	Loss of Material was added as an AERM in response to RAI 3.4-FPS-9, SNC correspondence HL-6002 dated October 10, 2000. Insulation Material was added and Cracking removed as an AERM in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000.
Nozzles	Flow Restriction	Air	Copper Alloy	Loss of Material Cracking	Fire Protection Activities	Flow blockage was removed as an AERM in response to RAI 3.4-FPS-8, SNC correspondence HL-6002 dated October 10, 2000.
Nozzles	Flow Restriction	Air	Aluminum Copper Alloy	Loss of Material Cracking	Fire Protection Activities	
Penetration Seals	Fire Barrier	Inside; Embedded	Ceramics Carbon Steel Synthetic Fiber Elastomers Concrete	Loss of Material Cracking Change in Material Properties	Fire Protection Activities	

Table 2.3-18 Fire Protection System [X43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Pilot Valves	Pressure Boundary	Raw Water	Aluminum	Loss of Material Cracking Flow Blockage	Fire Protection Activities	
Pipe Line Strainers	Pressure Boundary	Air	Cast Iron	Loss of Material Cracking Flow Blockage	Fire Protection Activities	
Piping	Pressure Boundary	Raw Water Air	Carbon Steel Aluminum Galvanized Steel Copper Alloy Cast Iron	Loss of Material Cracking Flow Blockage	Fire Protection Activities	
Piping	Pressure Boundary	Fuel Oil	Carbon Steel Stainless Steel	Loss of Material Cracking	Diesel Fuel Oil Testing Fire Protection Activities	
Piping	Pressure Boundary	Air Carbon Dioxide Dried Gas	Carbon Steel Galvanized Steel	Loss of Material Cracking	Fire Protection Activities	

Table 2.3-18 Fire Protection System [X43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping	Pressure Boundary	Buried	Cast Iron	None	None Required	This line item was added in response to Open Item 3.1.13-1 (a), SNC correspondence HL-6092, dated June 5, 2001.
Pump Casings	Pressure Boundary	Raw Water	Cast Iron	Loss of Material Cracking Flow Blockage	Fire Protection Activities	
Restricting Orifices	Pressure Boundary Flow Restriction	Raw Water Air	Stainless Steel	Loss of Material Cracking Flow Blockage	Fire Protection Activities	
Sprinkler Head Bulbs	Pressure Boundary	Inside	Ceramics	Cracking	Fire Protection Activities	
Sprinkler Head Links	Pressure Boundary	Inside	Copper	Cracking	Fire Protection Activities	Loss of Material was removed as an AERM in response to RAI 3.4-FPS-9, SNC correspondence HL-6002 dated October 10, 2000.

Table 2.3-18 Fire Protection System [X43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Sprinkler Heads	Flow Direction Pressure Boundary Flow Restriction	Raw Water Air	Stainless Steel Copper Alloy Carbon Steel	Loss of Material Cracking Flow Blockage	Fire Protection Activities	
Strainer Basket	Pressure Boundary	Raw Water Air	Stainless Steel	Loss of Material Cracking Flow Blockage	Fire Protection Activities	
Strainers	Pressure Boundary	Air Raw Water	Cast Iron	Loss of Material Cracking	Fire Protection Activities	Flow blockage was removed as an AERM in response to RAI 3.4-FPS-8, SNC correspondence HL-6002 dated October 10, 2000.
Tank	Pressure Boundary	Air	Carbon Steel	Loss of Material Cracking	Fire Protection Activities	Flow blockage was removed as an AERM in response to RAI 3.4-FPS-8, SNC correspondence HL-6002 dated October 10, 2000.
Tank	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Cracking Flow Blockage	Fire Protection Activities Protective Coatings Program	

Table 2.3-18 Fire Protection System [X43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Tank	Pressure Boundary	Fuel Oil	Carbon Steel	Loss of Material Cracking	Diesel Fuel Oil Testing Fire Protection Activities	
Tank	Pressure Boundary	Carbon Dioxide Dried Gas	Carbon Steel	Loss of Material Cracking	Fire Protection Activities	
Tank Insulation	Environmental Control	Inside Outside	Organic	Loss of Material Cracking Change in Material Properties	Fire Protection Activities	Loss of Material was added as an AERM and Outside was added as an Environment in response to RAI 3.4-FPS-9, SNC correspondence HL-6002 dated October 10, 2000.
Tubing	Pressure Boundary	Fuel Oil	Copper Alloy	Loss of Material Cracking	Diesel Fuel Oil Testing Fire Protection Activities	
Tubing Fittings	Pressure Boundary	Fuel Oil Raw Water	Copper Alloy Cast Iron Copper	Loss of Material Cracking	Diesel Fuel Oil Testing Fire Protection Activities	Diesel Fuel Oil Testing was added in response to RAI 3.4-FPS-11, SNC correspondence HL-6002 dated October 10, 2000.

Table 2.3-18 Fire Protection System [X43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies	Pressure Boundary	Raw Water Air	Carbon Steel Cast Iron Copper Alloy	Loss of Material Cracking Flow Blockage	Fire Protection Activities	
Valves Bodies	Pressure Boundary	Fuel Oil	Copper Alloy Cast Iron	Loss of Material Cracking	Diesel Fuel Oil Testing Fire Protection Activities	
Valves Bodies	Pressure Boundary	Carbon Dioxide Dried Gas Air	Carbon Steel Copper Alloy	Loss of Material Cracking	Fire Protection Activities	
Component External Surfaces (< 200 °F)	Pressure Boundary	Inside Outside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program

Table 2.3-18 Fire Protection System [X43] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Insulation	Protect and Insulate Piping	Outside	Various Insulating Materials and Jacketing	Loss of Material Cracking Change in Material Properties	Equipment and Piping Insulation Monitoring Program	FSAR 18.3.4, Equipment and Piping Insulation Program HL-6002, Sect. VI. B.2.4, Equipment and Piping Insulation Monitoring Program. NUREG 1803, Sect. 3.1.21, Equipment and Piping Insulation Monitoring Program

2.3.19 Fuel Oil System [Y52]

System Description

The purpose of the fuel oil system is to receive, store, and supply fuel oil to other systems.

Fuel oil is provided to the diesel generator system. Diesel engine fuel for Units 1 and 2 is stored in five interconnected buried tanks. Diesel fuel is transferred to the engine day tanks using dedicated, redundant transfer pumps and piping. The diesel fuel storage tanks are filled by gravity from a truck connection through a common header.

Two of the buried tanks are dedicated to each of the Unit 1 and Unit 2 diesel generators. The remaining tank is used to supply the swing diesel (1B) to serve either Unit 1 or Unit 2. The fuel oil system transfer pumps operate continuously on demand from the day tank level controllers. Storage tank levels are monitored and alarmed (low level) in the main control room (MCR).

HNP FSAR References

Additional information may be found in Unit 1 FSAR Section 8.4 and Unit 2 FSAR subsection 9.5.4.

Table 2.3-19 Fuel Oil System [Y52] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting	Pressure Boundary	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	
Discharge Head	Pressure Boundary	Fuel Oil	Carbon Steel	Loss of Material Cracking	Diesel Fuel Oil Testing	
Flex Hose	Pressure Boundary	Fuel Oil	Stainless Steel	Loss of Material Cracking	Diesel Fuel Oil Testing	
Manway Shell	Shelter/ Protection	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Piping	Pressure Boundary	Fuel Oil	Carbon Steel	Loss of Material Cracking	Diesel Fuel Oil Testing	
Piping	Pressure Boundary	Fuel Oil	Stainless Steel	Loss of Material Cracking	Diesel Fuel Oil Testing	

Table 2.3-19 Fuel Oil System [Y52] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping	Pressure Boundary	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspection Passive Component Inspection Activities	
Piping	Pressure Boundary	Air	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Piping	Pressure Boundary	Buried	Carbon Steel with Coal Tar Enamel Coating	Loss of Material	Protective Coatings Program	This line item was added in response to Open Item 3.1.13-1 (a), SNC correspondence HL-6092, dated June 5, 2001.
Pump	Pressure Boundary	Fuel Oil	Carbon Steel	Loss of Material Cracking	Diesel Fuel Oil Testing	
Strainer Basket	Shelter/ Protection	Fuel Oil	Stainless Steel	Loss of Material	Diesel Fuel Oil Testing	Cracking was removed as an AERM in response to email from R.D. Baker to W.F. Burton, dated June 20, 2000.
Tank	Pressure Boundary	Fuel Oil	Carbon Steel	Loss of Material	Diesel Fuel Oil Testing	Cracking was removed as an AERM in response to email from R.D. Baker to W.F. Burton, dated June 20, 2000.

Table 2.3-19 Fuel Oil System [Y52] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies	Pressure Boundary	Fuel Oil	Carbon Steel	Loss of Material Cracking	Diesel Fuel Oil Testing	
Valve Bodies	Pressure Boundary	Fuel Oil	Stainless Steel	Loss of Material Cracking	Diesel Fuel Oil Testing	
Valve Bodies	Pressure Boundary	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Valve Bodies	Pressure Boundary	Air	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Component External Surfaces (< 200 °F)	Pressure Boundary	Inside Shelter / Protection	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program

2.3.20 Control Building HVAC System [Z41]

System Description

The control building HVAC system performs the following functions under normal and post accident conditions of the plant:

- Provides temperature control and air movement control, including a filtered fresh-air supply, for personnel comfort.
- Optimizes equipment performance by the removal of the heat dissipated from the plant equipment.
- Minimizes the potential of exhaust air entering into the supply air intake by exhausting at an elevated point via the reactor building vent plenum.
- Detects and limits the introduction of radioactive material into the main control room (MCR).

The control building is served by both heating and air-conditioning (A/C) subsystems and a once-through ventilation subsystem. The A/C subsystems use direct expansion of chilled water cooling coils. Heating is provided by electric or hot water heating coils. The control room, computer room, water analysis room, chemistry laboratory and health physics area, and cold laboratory are the areas served by the heating and A/C subsystems. The low pressure coolant injection (LPCI) inverter room and Unit 2 vital A/C room are served by separate coolers. All other areas of the control building are served by a once-through ventilation subsystem.

HNP FSAR References

For additional information see Unit 2 FSAR subsection 9.4.7.

Table 2.3-20 Control Building HVAC System [Z41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Accumulator Air Valve	Pressure Boundary	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Accumulator Piping	Pressure Boundary	Dried Gas	Carbon Steel	Cracking	None Required	
Accumulator	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required	
Bolting	Pressure Boundary	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	
Condensing Unit Shell	Pressure Boundary	Inside	Carbon Steel	Loss of Material Cracking	Protective Coatings Program	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Condensing Unit Shell	Pressure Boundary	Raw Water Dried Gas	Gray Cast Iron	Loss of Material Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.

Table 2.3-20 Control Building HVAC System [Z41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Condensing Unit Tubing	Pressure Boundary	Raw Water	Copper Alloy	Loss of Material Cracking Loss of Heat Exchanger Performance	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Damper (frame only)	Pressure Boundary	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Damper (frame only)	Pressure Boundary	Air	Gray Cast Iron	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Duct Gasket	Pressure Boundary	Air Inside	Fibers, Nonasbestos Synthetic Elastomers, Other	Material Property Changes Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Duct Heater	Pressure Boundary	Air	Aluminum	Loss of Material	Gas Systems Component Inspections	
Duct Silencer	Pressure Boundary	Air	Galvanized Steel	Cracking	None Required	

Table 2.3-20 Control Building HVAC System [Z41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Ductwork	Pressure Boundary	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Ductwork	Pressure Boundary	Outside	Galvanized Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Ductwork Flex Connector	Pressure Boundary	Air Inside	Fibers, Non-Asbestos Synthetic Elastomers, Other	Material Property Changes Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Fan Housing	Pressure Boundary	Air Wetted	Aluminum	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Fan Housing	Pressure Boundary	Air Wetted	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.

Table 2.3-20 Control Building HVAC System [Z41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Fan Housing	Pressure Boundary	Air Wetted	Galvanized Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Filter Housing	Pressure Boundary	Air	Galvanized Steel	Cracking	None Required	
Fan Screen	Protection from Debris	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Flow Element	Pressure Boundary	Air	Stainless Steel	Cracking	None Required	This line item is added in response to Open Item 2.3.3.2-2 (a), (c), and (d), SNC correspondence HL-6092, dated June 5, 2001.
Instrument Piping	Pressure Boundary	Air	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Instrument Piping	Pressure Boundary	Air	Copper Alloy	Loss of Material Cracking	Gas Systems Component Inspections	

Table 2.3-20 Control Building HVAC System [Z41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Louver	Pressure Boundary	Outside	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Piping	Pressure Boundary	Air	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Radiation Element	Pressure Boundary	Air	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Restricting Orifice	Pressure Boundary	Air	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Thermowell	Pressure Boundary	Inside	Stainless Steel	Cracking	None Required	
Tubing	Pressure Boundary	Dried Gas	Copper	Cracking	None Required	
Valve Bodies	Pressure Boundary	Dried Gas	Carbon Steel	Cracking	None Required	
Valve Bodies	Pressure Boundary	Dried Gas	Copper Alloy	Cracking	None Required	
Valve Bodies	Pressure Boundary	Air	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	

Table 2.3-20 Control Building HVAC System [Z41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Component External Surfaces (< 200 °F)	Pressure Boundary	Inside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program

2.3.21 Turbine Building HVAC System [U41]

System Description

The Turbine Building HVAC System performs the following functions under normal and post accident conditions of the plant:

- Provides temperature control and air movement control, including a filtered fresh-air supply, for personnel comfort.
- Optimizes equipment performance by the removal of heat dissipated from plant equipment.
- Provides for air movement from areas of lesser potential airborne radioactivity to areas of greater potential airborne radioactivity prior to final exhaust.
- Minimizes the possibility of exhaust air recirculation into the air intake.
- Minimizes the escape of potential airborne radioactivity to the outside atmosphere during normal operation by exhausting air through a suitable filtration system from the areas in which a significant potential for radioactive particulates and radioactive iodine contamination exists.
- Purges the Turbine Building area around the main control room to remove airborne radioactivity following a design basis loss of coolant accident, control rod drop accident, or main steam line break.

Fresh air from outside is supplied to the Turbine Building by a duct system with two supply fans. Normally, one fan is in operation while the other is on standby. If the operating supply fan fails, the standby fan starts automatically. The normal outside air supply is filtered and tempered through a hot water heating coil.

Air is exhausted from the Turbine Building by a duct system to the Reactor Building vent plenum by two exhaust fans. The Turbine Building exhaust is filtered by two 50% capacity filter trains. Each filter train consists of a bank of prefilters, carbon adsorbers, and HEPA filters. Only one of the two 100% capacity exhaust fans is normally in operation. If the operating exhaust fan fails, the standby fan starts automatically.

Following a design basis loss of coolant accident, control rod drop accident, or main steam line break, leakage past the MSIVs is contained in the main steam piping downstream of the MSIVs and in the main condenser. One Turbine Building exhaust fan is manually placed in operation to purge the Turbine Building area around the main control room of any airborne radioactivity which might leak out of the main steam piping or main condenser in order to reduce the dose received by personnel in the main control room.

HNP FSAR References

More information about this system may be found in Unit 1 FSAR Section 10.9.3.4 and Unit 2 FSAR Section 9.4.4.

Table 2.3-21 Turbine Building HVAC System [U41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting	Pressure Boundary	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	This line added for AST licensing amendments 256 (U1) and 200 (U2)
Damper (frame only)	Pressure Boundary	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line added for AST licensing amendments 256 (U1) and 200 (U2)
Duct Gasket	Pressure Boundary	Air Inside	Elastomers, Other	Material Property Changes Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line added for AST licensing amendments 256 (U1) and 200 (U2)
Ductwork	Pressure Boundary	Air	Galvanized Steel	Cracking	None Required	This line added for AST licensing amendments 256 (U1) and 200 (U2)
Ductwork Flex Connector	Pressure Boundary	Air Inside	Elastomers, Other	Material Property Changes Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line added for AST licensing amendments 256 (U1) and 200 (U2)
Fan Housing	Pressure Boundary	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line added for AST licensing amendments 256 (U1) and 200 (U2)

Table 2.3-21 Turbine Building HVAC System [U41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Filter Housing	Pressure Boundary	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line added for AST licensing amendments 256 (U1) and 200 (U2)
Flow Element	Pressure Boundary	Air	Stainless Steel	Cracking	None Required	This line added for AST licensing amendments 256 (U1) and 200 (U2)
Instrument Piping	Pressure Boundary	Air	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	This line added for AST licensing amendments 256 (U1) and 200 (U2)
Piping	Pressure Boundary	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line added for AST licensing amendments 256 (U1) and 200 (U2)
Radiation Element	Pressure Boundary	Air	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	This line added for AST licensing amendments 256 (U1) and 200 (U2)
Tubing	Pressure Boundary	Air	Copper	Cracking	None Required	This line added for AST licensing amendments 256 (U1) and 200 (U2)
Valve Bodies	Pressure Boundary	Air	Cast Iron	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	This line added for AST licensing amendments 256 (U1) and 200 (U2)

Table 2.3-21 Turbine Building HVAC System [U41] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies	Pressure Boundary	Air	Copper Alloy	Cracking	None Required	This line added for AST licensing amendments 256 (U1) and 200 (U2)
Component External Surfaces (< 200 °F)	Pressure Boundary	Inside	Carbon Steel	Loss of Material	Protective Coatings Program	This line added for AST licensing amendments 256 (U1) and 200 (U2)

2.4 Steam And Power Conversion Systems

The Steam and Power Conversion Systems are addressed in the following sections:

- Electro-Hydraulic Control System, Section **2.4.1**
- Main Condenser System, Section **2.4.2**

2.4.1 Electro-Hydraulic Control System [N32]

System Description

The purpose of the electro-hydraulic control (EHC) system is to provide control of reactor pressure during reactor startup, power operation, and shutdown. EHC also provides a means of controlling main turbine speed and acceleration during turbine startup and protect the main turbine from undesirable operating conditions by initiating alarms, trips, and runbacks.

HNP FSAR References

Additional information about this system may be found in Unit 1 FSAR Section 11.2 and Unit 2 FSAR subsection 10.2A.1.

Table 2.4-1 Electro-Hydraulic Control System [N32] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping	Pressure Boundary	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections	
Valve Bodies	Pressure Boundary	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections	

2.4.2 Main Condenser System [N61]

System Description

The main condenser provides a heat sink for turbine exhaust steam, turbine bypass steam, and other flows such as cascading heater drains, air ejector condenser drains, exhaust from the feed pump turbines, gland seal condenser, feedwater heater shell operating vents, and condensate pump suction vents. The main condenser also deaerates and provides storage capacity for the condensate water to be reused.

During plant operation, steam from the last-stage, low-pressure turbine is exhausted directly downward into the condenser shells through exhaust openings in the bottom of the turbine casings. The condenser serves as a heat sink for several others flows, such as exhaust steam from the feed pump turbines, cascading heater drains, air ejector condenser drain, gland-seal condenser drain, feedwater heater shell operating vents, and condensate pump suction vents.

Other flows occur periodically. These originate from condensate and reactor feed pump startup vents, reactor feed pump minimum recirculation flow, feedwater lines startup flushing, turbine equipment clean drains, low-point drains, extraction steam spills, makeup, and condensate.

During abnormal conditions, the condenser is designed to receive (not simultaneously) turbine bypass steam, feedwater heater high-level dumps, and relief valve discharge from feedwater heater shells, steam-seal regulator, and various steam supply lines.

During a design basis loss of coolant accident, control rod drop accident, or main steam line break, the main condenser and main steam piping downstream of the MSIVs are credited for a reduction in the offsite dose associated with leakage past the MSIVs. Retention of MSIV leakage within these components provides for holdup and deposition of radionuclides. Also credited is an alternate leakage treatment path from the main steam lines downstream of the MSIVs to the condenser.

HNP FSAR References

Additional information may be found in Unit 2 FSAR subsection 10.4.1.

Table 2.4-2 Main Condenser System [N61] – Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Bolting	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program	Revised to include Unit 1 components following implementation of Alternate Source Term License Amendment 256.
Condenser Shell	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections Galvanic Susceptibility Inspections	Revised to include Unit 1 components following implementation of Alternate Source Term License Amendment 256.
Piping	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Flow Accelerated Corrosion Program Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	Revised to include Unit 1 components following implementation of Alternate Source Term License Amendment 256.

Table 2.4-2 Main Condenser System [N61]– Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections	This row appears twice in the LRA and the duplicate was removed in response to RAI 3.5-MC-1, SNC correspondence HL-6002 dated October 10, 2000. Revised to include Unit 1 components following implementation of Alternate Source Term License Amendment 256.
Preheater	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections	Not applicable to Unit 1
Preheater	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections	Not applicable to Unit 1
Restricting Orifices	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections	Revised to include Unit 1 components following implementation of Alternate Source Term License Amendment 256.

Table 2.4-2 Main Condenser System [N61]– Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Steam Traps	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Flow Accelerated Corrosion Program Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	Unit 2 Only Revised to remove Unit 1 components incorrectly added following implementation of Alternate Source Term License Amendment 256. See RER SNC460325.
Strainer	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Flow Accelerated Corrosion Program Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	Revised to include Unit 1 components following implementation of Alternate Source Term License Amendment 256.
Thermowell	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections	Revised to include Unit 1 components following implementation of Alternate Source Term License Amendment 256.

Table 2.4-2 Main Condenser System [N61]– Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Valve Bodies	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Flow Accelerated Corrosion Program Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections	Revised to include Unit 1 components following implementation of Alternate Source Term License Amendment 256. Component function of Fission Product Barrier added following implementation of Alternate Source Term license amendments 256 (U1) and 200 (U2)
Valve Bodies	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections	Revised to include Unit 1 components following implementation of Alternate Source Term License Amendment 256. Component function of Fission Product Barrier added following implementation of Alternate Source Term license amendments 256 (U1) and 200 (U2)

Table 2.4-2 Main Condenser System [N61]– Aging Management Review Results

Mechanical Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Component External Surfaces (< 200 °F)	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program Revised to include Unit 1 components following implementation of Alternate Source Term License Amendment 256.

2.5 Structures and Component Supports

The Structures and Component Supports are addressed in the following sections:

- Piping Specialties, Section **2.5.1**
- Conduits, Raceways, and Trays, Section **2.5.2**
- Primary Containment, Section **2.5.3**
- Fuel Storage, Section **2.5.4**
- Reactor Building, Section **2.5.5**
- Drywell Penetrations, Section **2.5.6**
- Reactor Building Penetrations, Section **2.5.7**
- Turbine Building, Section **2.5.8**
- Intake Structure, Section **2.5.9**
- Yard Structures, Section **2.5.10**
- Main Stack, Section **2.5.11**
- EDG Building, Section **2.5.12**
- Control Building, Section **2.5.13**
- Switchyard Structures, Section **2.5.14**

2.5.1 Piping Specialties [L35]

System Description

Piping specialties provide support for essential piping systems. Essential piping systems are required to maintain the integrity of safety-related and nonsafety-related systems during normal operations and transient/accident mitigation. These specialties include snubbers and pipe restraints regardless of system affiliation and also include non-ASME HVAC duct supports and tube trays.

Table 2.5-1 Piping Specialties [L35] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Hangers and Supports for ASME Class I Piping	Structural Support	Containment Atmosphere Inside	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Hangers and Supports for ASME Class I Piping	Structural Support	Containment Atmosphere Inside	Stainless Steel	None	None Required	
Hangers and Supports for Non ASME Class I Piping, Tubing, and Ducts	Structural Support Nonsafety Related Structural Support	Containment Atmosphere Inside Outside Submerged	Carbon Steel Galvanized Steel Stainless Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Tube Trays and Covers	Structural Support Nonsafety Related Structural Support	Inside Outside	Stainless Steel	None	None Required	

2.5.2 Conduits, Raceways, and Trays [R33]

System Description

The purpose of the conduits, raceways, and trays system is to provide support for a cable system with cables and penetrations selected, routed, and located to survive the design basis events established for this plant and prevent a loss of function of any system due to a cable failure.

HNP FSAR References

Additional information may be found in Unit 1 FSAR Section 8.8 and Unit 2 FSAR Section 8.3.

Table 2.5-2 Conduits, Raceways, and Trays [R33] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Cable Trays and supports	Structural Support Nonsafety Related Structural Support	Containment Atmosphere Inside	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Cable Trays and supports	Structural Support Nonsafety Related Structural Support	Containment Atmosphere Inside	Aluminum	None	None Required	

2.5.3 Primary Containment [T23]

System Description

The purpose of the primary containment is to isolate and contain fission products released from the reactor primary system following a design basis accident (DBA) and to confine the postulated release of radioactive material.

The primary containment design employs a pressure suppression containment system which houses the reactor vessel, the reactor coolant recirculating loops, and other branch connections of the reactor primary system. The pressure suppression system consists of a drywell, a pressure suppression chamber (torus) which stores a large volume of water, a connecting vent system between the drywell and the pressure suppression pool, isolation valves, vacuum relief system, containment cooling systems, and other service equipment.

The pressure suppression chamber is a steel pressure vessel in the shape of a torus located below and encircling the drywell, with a major diameter of approximately 107 ft and a cross-sectional diameter of approximately 28 ft. The pressure suppression chamber contains the suppression pool and the air space above the pool. The suppression chamber transmits seismic loading to the reinforced concrete foundation slab of the reactor building. Space is provided outside of the chamber for inspection.

HNP FSAR References
Additional information about this system may be found in Unit 1 FSAR subsection 5.1.2 and Unit 2 FSAR subsection 6.2.1.

Table 2.5-3 Primary Containment [T23] - Summary of Aging Management Review

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Anchors and Bolts	Structural Support Nonsafety Related Structural Support	Containment Atmosphere Embedded Inside Torus Water	Carbon Steel Galvanized Steel Stainless Steel	Loss of Material	Protective Coatings Program Inservice Inspection Program Suppression Pool Chemistry Control	
Bolting	Pressure Boundary	Containment Atmosphere Inside	Carbon Steel	Loss of Material Loss of Preload	Protective Coatings Program Torque Activities	Line item added in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000.
Blind Flange*	Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections	Treated Water Systems Piping Inspections was added in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000.
Containment Isolation Valves*	Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	
Containment Isolation Valves*	Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	

Table 2.5-3 Primary Containment [T23] - Summary of Aging Management Review

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Containment Isolation Valves*	Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections	
Containment Isolation Valves*	Fission Product Barrier	Raw Water	Carbon Steel	Loss of Material Cracking	Passive Component Inspection Activities	
Containment Isolation Valves*	Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material	Gas Systems Component Inspections Passive Component Inspection Activities	
Containment Isolation Valves*	Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspection	
Containment Penetrations (Mechanical only)	Fission Product Barrier	Containment Atmosphere Embedded Inside	Carbon Steel Stainless Steel	Loss of Material	Protective Coatings Program Inservice Inspection Program Primary Containment Leakage Rate Testing Program	

Table 2.5-3 Primary Containment [T23] - Summary of Aging Management Review

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Miscellaneous Steel	Structural Support Radiation Shielding Nonsafety Related Structural Support Pipe Whip Restraint	Containment Atmosphere Embedded Inside High Humidity Torus Water	Carbon Steel Galvanized Steel	Loss of Material	Protective Coatings Program Inservice Inspection Program Suppression Pool Chemistry Control	
Piping*	Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections	
Piping*	Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections	
Piping*	Fission Product Barrier	Raw Water	Carbon Steel	Loss of Material Cracking	Passive Component Inspection Activities	

Table 2.5-3 Primary Containment [T23] - Summary of Aging Management Review

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Piping*	Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities	
Piping*	Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material	Gas Systems Component Inspection	
Reinforced Concrete	Structural Support Shelter/Protection Radiation Shielding HE/ME Shielding Missile Barrier Fission Product Barrier Flood Barrier	Containment Atmosphere Inside	Concrete Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	

Table 2.5-3 Primary Containment [T23] - Summary of Aging Management Review

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Steel Bellows (Inside Vent Pipe)	Pressure Boundary Fission Product Barrier	Containment Atmosphere Inside	Carbon Steel Stainless Steel	Loss of Material	Protective Coatings Program Inservice Inspection Program Primary Containment Leakage Rate Testing Program	

Table 2.5-3 Primary Containment [T23] - Summary of Aging Management Review

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Structural Steel	Structural Support Shelter/Protection Pressure Boundary Radiation Shielding Nonsafety Related Structural Support HE/ME Shielding Missile Barrier Pipe Whip Restraint Fission Product Barrier Exchange Heat	Containment Atmosphere Embedded Inside Torus Water	Carbon Steel Stainless Steel	Loss of Material Cracking	Protective Coatings Program Primary Containment Leakage Rate Testing Program Inservice Inspection Program Suppression Pool Chemistry Control Component Cyclic or Transient Limit Program	

Table 2.5-3 Primary Containment [T23] - Summary of Aging Management Review

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Tubing*	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections	
Vent Pipe, Vent Header, Downcomers	Pressure Boundary Fission Product Barrier	Containment Atmosphere Inside High Humidity Torus Water	Carbon Steel	Loss of Material Cracking	Protective Coatings Program Inservice Inspection Program Primary Containment Leakage Rate Testing Program Component Cyclic or Transient Limit Program Suppression Pool Chemistry Control	
Component External Surfaces (< 200 °F)	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Material	Protective Coatings Program	FSAR 18.3.3, Protective Coatings Program HL-6002, Sect. VI. B.2.3, Protective Coatings Program. NUREG 1803, Sect. 3.1.20, Protective Coatings Program

* Piping and valve bodies include components from systems P51, P21, T23, G51, G11, D11, and C51. These are all included in function T23-01, Torus/Drywell.

2.5.4 Fuel Storage [T24]

System Description

The purpose of the fuel storage system is to provide specially designed underwater storage space for the spent-fuel assemblies which require shielding during storage and handling. The fuel storage facility is located inside the secondary containment on the refueling floor.

HNP FSAR References

Additional information may be found in Unit 1 FSAR Section 10.2, 10.3 and Unit 2 FSAR Section 9.1.

Table 2.5-4 Fuel Storage [T24] – Summary of Aging Management Review

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Anchors and Bolts	Structural Support Nonsafety Related Structural Support	Inside	Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Anchors and Bolts	Structural Support	Inside Demin Water	Stainless Steel	Loss of Material	Fuel Pool Chemistry Control	The original line item was modified, creating two line items, in response to RAI 3.6-24, SNC correspondence HL-6002 dated October 10, 2000.
Anchors and Bolts	Structural Support	Embedded Inside	Stainless Steel	Loss of Material	Structural Monitoring Program	
Miscellaneous Steel	Structural Support Nonsafety Related Structural Support	Inside	Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Miscellaneous Steel	Fission Product Barrier	Inside Demin Water	Stainless Steel	Loss of Material	Fuel Pool Chemistry Control	The original line item was modified, creating two line items, in response to RAI 3.6-24, SNC correspondence HL-6002 dated October 10, 2000.
Miscellaneous Steel	Fission Product Barrier	Embedded Inside	Stainless Steel	Loss of Material	Structural Monitoring Program	

Table 2.5-4 Fuel Storage [T24] – Summary of Aging Management Review

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Reinforced Concrete	Structural Support Shelter/Protection	Inside	Concrete Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Reinforced Concrete	Structural Support Nonsafety Related Structural Support	Inside	Concrete Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Seismic restraints for spent fuel storage racks	Structural Support	Inside Demin Water	Aluminum	Loss of Material	Fuel Pool Chemistry Control	
Storage Racks – New Fuel	Structural Support Nonsafety Related Structural Support	Inside	Aluminum	None	None Required	This line item was added in response to RAIs 3.6-20 & 24, SNC correspondence HL-6002 dated October 10, 2000.
Storage Racks	Structural Support Nonsafety Related Structural Support	Inside	Aluminum	None	None Required	

Table 2.5-4 Fuel Storage [T24] – Summary of Aging Management Review

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Structural Steel	Structural Support Shelter/ Protection Fission Product Barrier	Inside Demin Water	Stainless Steel	Loss of Material	Fuel Pool Chemistry Control	

2.5.5 Reactor Building [T29]

System Description

The purpose of the reactor building is to shelter and support the refueling and reactor servicing equipment, new and spent fuel storage facilities, and other reactor auxiliary and service equipment.

The building is a reinforced concrete structure with a steel superstructure. The building consists of the following major structural components:

- Reinforced concrete foundation mat.
- Reinforced concrete exterior walls and prestressed exterior wall panels.
- Reinforced concrete floors with reinforced concrete beams and girders framing.
- Reinforced concrete interior walls with some blockouts filled with concrete masonry.
- Reinforced concrete roof slab on metal roof deck system supported by steel superstructure.

The reactor building completely encloses the reactor and its pressure suppression primary containment system. Also housed within the reactor building are the core standby cooling systems, reactor water cleanup demineralizer system, standby liquid control system, control rod drive system, reactor protection system, and electrical equipment components. The building is designed for minimum leakage so that the standby gas treatment system (SGTS) has the necessary capacity to reduce and hold the building at a subatmospheric pressure under normal wind conditions.

HNP FSAR References

Additional information may be found in Unit 1 FSAR subsection 12.2.1 and Unit 2 FSAR Section 3.0.

Table 2.5-5 Reactor Building [T29] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Anchors and Bolts	Structural Support Nonsafety Related Structural Support	Inside Outside	Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Blowout Panels	Structural Support Fission Product Barrier	Inside	Aluminum	None	None Required	
Miscellaneous Steel	Structural Support Nonsafety Related Structural Support HE/ME Shielding	Inside Outside	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	

Table 2.5-5 Reactor Building [T29] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Miscellaneous Steel	Structural Support Nonsafety Related Structural Support HE/ME Shielding	Inside Outside	Stainless Steel	None	None Required	
Panel Joint Seals and Sealants	Shelter/ Protection Fission Product Barrier	Inside Outside	Elastomers; Nonmetallic, Inorganic	Material Property Changes Cracking Loss of Adhesion	Structural Monitoring Program	Protective Coatings Program was removed in response to RAI 3.6-27, SNC correspondence HL-6002 dated October 10, 2000; and in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000.

Table 2.5-5 Reactor Building [T29] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Reinforced Concrete	Structural Support Shelter/Protection Radiation Shielding Nonsafety Related Structural Support HE/ME Shielding Missile Barrier Fission Product Barrier Flood Barrier Fire Barrier	Inside Outside	Concrete Masonry Block Carbon Steel	Loss of Material Cracking	Structural Monitoring Program Protective Coatings Program	

Table 2.5-5 Reactor Building [T29] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Structural Steel	Structural Support Nonsafety Related Structural Support Missile Barrier	Inside Outside Submerged	Carbon Steel Galvanized Steel Stainless Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program Overhead Crane and Refueling Platform Inspections	Overhead Crane and Refueling Platform Inspections added in response to email from R.D. Baker to W.F. Burton, dated April 21, 2000.

2.5.6 Drywell Penetrations [T52]

System Description

The purpose of the drywell penetrations is to provide a path for cable currents/signals to pass through primary containment to support the various modes of operation of their associated systems while maintaining primary containment integrity.

Mechanical penetrations are discussed in Section 2.5.3 (Primary Containment [T23]).

Containment penetrations include electrical penetration assemblies in addition to the mechanical penetrations referenced above. Electrical penetrations are hermetically sealed penetrations which are welded to the primary containment shell plate. They must maintain their primary containment pressure integrity function during all postulated operating and accident conditions. They are designed for the same pressure and temperature conditions as the drywell and pressure suppression chamber.

HNP FSAR References

For additional information see Unit 1 FSAR Section 5.2 and Unit 2 FSAR subsection 6.2.1.

Table 2.5-6 Drywell Penetrations [T52] – Aging Management Review Results

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Structural Steel	Fission Product Barrier	Containment Atmosphere Embedded Inside	Carbon Steel	Loss of Material	Protective Coatings Program Primary Containment Leakage Rate Testing Program Inservice Inspection Program	

2.5.7 Reactor Building Penetrations [T54]

System Description

The purpose of the reactor building penetrations is to allow mechanical and electrical equipment and personnel to pass through secondary containment to support the various modes of operation of their associated systems while maintaining secondary containment integrity.

Penetrations for piping and ducts are designed for leakage characteristics consistent with containment requirements for the entire building. Electrical cables and instrument leads pass through ducts sealed into the building wall.

HNP FSAR References

Additional information may be found in Unit 1 FSAR paragraph 5.3.3.2 and Unit 2 FSAR figure 8.3-11.

Table 2.5-7 Reactor Building Penetrations [T54] – Summary of Aging Management Review

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Structural Steel	Fission Product Barrier	Embedded Inside Outside	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	

2.5.8 Turbine Building [U29]

System Description

The purpose of the turbine building is to house the turbine-generator and associated auxiliaries including the condensate and feedwater systems.

The turbine building is a steel and concrete structure consisting of the following major structural components:

- Reinforced concrete foundation mat.
- Reinforced concrete floors self-supporting or supported by structural steel framing.
- Reinforced concrete or concrete block interior walls.
- Reinforced concrete turbine pedestal resting on concrete mat foundation.
- Reinforced concrete exterior walls.
- Reinforced concrete slab on metal roof deck system supported by steel framing.

HNP FSAR References

Additional information may be found in Unit 1 FSAR subsection 12.2.2 and Unit 2 FSAR Section 3.2.

Table 2.5-8 Turbine Building [U29] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Anchors and Bolts	Structural Support Nonsafety Related Structural Support	Embedded Inside Outside Wetting Other Than Humidity	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Miscellaneous Steel	Structural Support Nonsafety Related Structural Support	Inside	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Reinforced Concrete	Structural Support Shelter/Protection Radiation Shielding Nonsafety Related Structural Support	Buried Inside Outside	Concrete Masonry Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	

Table 2.5-8 Turbine Building [U29] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Structural Steel	Structural Support Shelter/Protection Nonsafety Related Structural Support	Inside	Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	

2.5.9 Intake Structure [W35]

System Description

The purpose of the intake structure is to protect residual heat removal service water and plant service water equipment from the influence of environmental conditions such as flooding, earthquakes, and tornadoes.

The intake structure is a concrete and steel structure consisting of the following major structural components:

- Reinforced concrete foundation mat.
- Reinforced concrete exterior walls and internal walls.
- Reinforced concrete floors and roof.
- Structural steel framing and grating, steel water spray and internal missile shield barriers, stairs, and platforms.

Unit 1 shares the intake structure with Unit 2. The intake structure has labyrinth access openings for protection against tornado missiles.

HNP FSAR References

Additional information may be found in Unit 1 FSAR subsection 12.2.7 and Unit 2 FSAR subsection 3.8.4.

Table 2.5-9 Intake Structure [W35] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Anchors and Bolts	Structural Support Nonsafety Related Structural Support	Embedded Inside Outside High Humidity Wetting Other Than Humidity	Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Miscellaneous Steel	Structural Support Nonsafety Related Structural Support Missile Barrier	Embedded Inside Outside High Humidity Wetting Other Than Humidity Submerged	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	

Table 2.5-10 Yard Structures [Y29] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Reinforced Concrete	Structural Support Shelter/Protection Nonsafety Related Structural Support Missile Barrier Flood Barrier	Buried Inside Outside High Humidity Wetting Other Than Humidity Submerged	Concrete Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Structural Steel	Structural Support Shelter/Protection Nonsafety Related Structural Support Missile Barrier Flow Direction	Embedded Inside Outside High Humidity Wetting Other Than Humidity	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	

2.5.10 Yard Structures [Y29]

System Description

The purpose of the yard structures is to provide equipment integrity and personnel habitability for various structures on the plant site.

Some of the structures included in Y29 are:

- The concrete wall and foundation accommodating the condensate storage tank.
- The foundation of the nitrogen storage tank.
- The service water valve pit boxes.
- The foundation for the fire pump house.
- The foundations for the two fire protection water storage tanks.
- The foundations for the two fire protection diesel pump fuel tanks.
- Underground concrete duct runs and pull boxes between Class I structures.

HNP FSAR References

Additional information may be found in Unit 1 FSAR paragraph 5.2.3.9 and Unit 2 FSAR paragraph 3.8.5.1.

Table 2.5-10 Yard Structures [Y29] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Anchors and Bolts	Structural Support Nonsafety Related Structural Support	Inside Outside	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Cover Plates – Pull Boxes	Shelter/Protection Flood Barrier	Inside Outside	Aluminum	None	None Required	
Miscellaneous Steel	Structural Support Nonsafety Related Structural Support	Inside Outside	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Reinforced Concrete	Structural Support Nonsafety Related Structural Support	Inside Outside	Concrete Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	

Table 2.5-10 Yard Structures [Y29] – Aging Management Review Results

Structural Component	**Intended Functions**	**Environment**	**Material**	**Aging Effects**	**Aging Management Programs**	**Comments**
Structural Steel	Structural Support Shelter/Protection Nonsafety Related Structural Support	Inside Outside	Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	

2.5.11 Main Stack [Y32]

System Description

The purpose of the main stack is to support and protect monitoring equipment and provide for the monitoring and elevated release of gaseous effluents from the main stack system.

The main stack is a concrete cylindrical shape which consists of the following major components:

- Reinforced concrete foundation mat supported on steel “H” piles.
- Reinforced concrete truncated conical cylinder.
- Reinforced concrete internal floors.
- Reinforced concrete loading bay consisting of concrete base slab, external and internal walls, and roof.

Unit 1 shares a single main stack used to discharge gaseous waste with Unit 2. The main stack extends 120 meters above ground level.

HNP FSAR References

Additional information may be found in Unit 1 FSAR subsection 5.3.4 and Unit 2 FSAR Section 11.3.

Table 2.5-11 Main Stack [Y32] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Anchors and Bolts	Structural Support Nonsafety Related Structural Support	Embedded Outside	Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Anchors and Bolts	Structural Support Nonsafety Related Structural Support	Embedded Inside Outside	Stainless Steel Copper Alloy (Bronze)	None	None Required	
Miscellaneous Steel	Structural Support Nonsafety Related Structural Support	Outside	Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Miscellaneous Steel	Structural Support Nonsafety Related Structural Support	Inside	Galvanized Steel	None	None Required	

Table 2.5-11 Main Stack [Y32] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Reinforced Concrete	Structural Support Shelter/ Protection Radiation Shielding Nonsafety Related Structural Support Fission Product Barrier Fire Barrier	Inside Outside	Concrete Carbon Steel Masonry Block	Loss of Material Cracking	Structural Monitoring Program Protective Coatings Program	Fire Barrier was added as an intended function and Masonry Block added as a Material in response to RAI 3.4-FPS-13, SNC correspondence HL-6002 dated October 10, 2000.
Structural Steel	Structural Support Nonsafety Related Structural Support	Inside	Galvanized Steel	None	None Required	

2.5.12 EDG Building [Y39]

System Description

The purpose of the diesel generator building is to house the emergency diesel generators (EDG) and their accessories for safe plant shutdown for both Unit 1 and Unit 2.

The diesel generator building is a reinforced concrete structure consisting of the following major structural components:

- Reinforced concrete foundation mat.
- Reinforced concrete exterior walls and interior walls.
- Reinforced concrete roof and parapet wall.

The diesel generator building houses EDGs and their accessories. The diesel generator building has labyrinth access openings for protection against tornado missiles. The diesel generator building is designed as a Seismic Category I structure to protect vital equipment and systems both during and following the most severe natural phenomena.

HNP FSAR References

Additional information may be found in Unit 1 FSAR subsection 12.2.6 and Unit 2 FSAR subsection 9.4.5.

Table 2.5-12 EDG Building [Y39] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Anchors and Bolts	Structural Support Nonsafety Related Structural Support	Inside	Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Miscellaneous Steel	Structural Support Nonsafety Related Structural Support	Embedded Inside	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Reinforced Concrete	Structural Support Shelter/Protection Nonsafety Related Structural Support Missile Barrier	Inside Outside	Concrete Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	

Table 2.5-12 EDG Building [Y39] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Structural Steel	Structural Support Nonsafety Related Structural Support	Inside	Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	

2.5.13 Control Building [Z29]

System Description

The purpose of the control building is to house the common control room for Units 1 and 2 and associated auxiliaries.

The building is a reinforced concrete structure with steel framing. The building consists of the following major structural components.

- Reinforced concrete foundation mat.
- Reinforced concrete floors with reinforced concrete beam and girder framing.
- Reinforced concrete or concrete block interior walls and reinforced concrete columns.
- Reinforced concrete exterior walls and prestressed exterior wall panels.
- Reinforced concrete slab on metal roof deck system supported by steel framing.

HNP FSAR References

Additional information may be found in Unit 1 FSAR paragraph 12.3.3.1.1 and Unit 2 FSAR subsection 3.2.1.

Table 2.5-13 Control Building [Z29] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Anchors and Bolts	Structural Support Nonsafety Related Structural Support	Embedded Inside	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	
Blowout Panels	Structural Support Fission Product Barrier	Inside	Aluminum	None	None Required	
Miscellaneous Steel	Structural Support Nonsafety Related Structural Support	Embedded Inside	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	

Table 2.5-13 Control Building [Z29] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Reinforced Concrete	Structural Support Shelter/ Protection Nonsafety Related Structural Support Missile Barrier Fire Barrier	Inside Outside	Concrete Carbon Steel Masonry Block	Loss of Material Cracking	Structural Monitoring Program Protective Coatings Program	Fire Barrier was added as an intended function and Masonry Block added as a Material in response to RAI 3.4-FPS-13, SNC correspondence HL-6002 dated October 10, 2000.
Structural Steel	Structural Support Shelter/Protection Nonsafety Related Structural Support	Inside	Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	

2.5.14 Switchyard Structures [S48]

System Description

The purpose of the switchyard structures is to provide equipment integrity and personnel habitability for structures in the low voltage and high voltage switchyards which are required to attach the onsite AC power distribution system to the offsite power system and energize the safety-related AC buses.

Some of the structures included in S48 are:

- The foundations of station service transformers 1C, 1D, 2C, and 2D.
- The foundations for structures such as 230 kV line towers, breakers, switch structures, and bus support columns.
- The foundation and structure of the switchhouse.
- Underground concrete duct runs and covers.

HNP FSAR References

Additional information may be found in Unit 2 FSAR paragraph 8.3.

Table 2.5-14 Switchyard Structures [S48] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Anchors and Bolts	Nonsafety Related Structural Support	Inside Outside Embedded	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	Added due to LR-ISG-02 per RIS 2007-16, Rev. 1
Cable Trays and supports	Nonsafety Related Structural Support	Inside Outside	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	Added due to LR-ISG-02 per RIS 2007-16, Rev. 1
Cable Trays and supports	Nonsafety Related Structural Support	Inside Outside	Aluminum	None	None Required	Added due to LR-ISG-02 per RIS 2007-16, Rev. 1
Miscellaneous Steel	Nonsafety Related Structural Support	Inside Outside	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	Added due to LR-ISG-02 per RIS 2007-16, Rev. 1
Reinforced Concrete	Nonsafety Related Structural Support	Inside Outside	Concrete Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	Added due to LR-ISG-02 per RIS 2007-16, Rev. 1
Structural Steel	Shelter/Protection Nonsafety Related Structural Support	Inside Outside	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	Added due to LR-ISG-02 per RIS 2007-16, Rev. 1

2.6 Electrical Components

The Electrical Components for the Plant Hatch LRA Systems are addressed in the following sections:

- Electric Power and Instrumentation and Controls (Plant Wide), Section **2.6.1**
    - Analog Transmitter Trip System, Section **2.6.1(a)**
    - Nuclear Steam Supply Shutoff System, Section **2.6.1(b)**
    - Primary Containment Isolation System, Section **2.6.1(c)**
    - Reactor Protection System, Section **2.6.1(d)**
    - Remote Shutdown System, Section **2.6.1(e)**
    - Process Radiation Monitoring System, Section **2.6.1(f)**
    - Heat Trace System, Section **2.6.1(g)**
    - Plant AC Electrical System, Section **2.6.1(h)**
    - DC Electrical System, Section **2.6.1(i)**
    - Plant Communications System, Section **2.6.1(j)**
    - Power Transformers System, Section **2.6.1(k)**
    - Emergency Response Facilities System, Section **2.6.1(l)**
- Electrical Panels, Racks, & Cabinets, Section **2.6.2**
- Instruments Racks, Panels, & Enclosures, Section **2.6.3**
- Switchyard, Section **2.6.4**

2.6.1 Electric Power and Instrumentation and Controls (Plant Wide)

The Electric Power and Instrumentation and Controls LRA system is comprised of several plant systems as described in Sections 2.6.1(a) – 2.6.1(l) below.

Table 2.6-1 presents the electrical AMR results. The list of electrical components subject to an AMR is determined on a plantwide basis by compiling a list of all electrical component types installed in the plant, then applying the scoping and screening criteria in the Rule to determine those component types subject to an AMR. The resulting list is an encompassing list of component types, not individual components. For example, cable is listed as a component type. Individual circuits are not evaluated to determine whether they are in scope. The list of component types subject to an aging management review has been further reduced by application of the scoping criteria to the component types which meet the screening criteria. These criteria are found in 10 CFR 54.4(a). Any component type which does not meet the scoping criteria in this section on a generic basis does not require an aging management review. The comprehensive list of electrical component types is included in Table 2.6-1.

2.6.1(a) Analog Transmitter Trip System [A70]

System Description

The purpose of the analog transmitter trip system (ATTS) is to monitor several critical plant parameters and provide actuation and trip signals to the following systems:

- Reactor Protection System
- Primary Containment Isolation System
- Secondary Containment Isolation System
- Core Spray System
- Residual Heat Removal System
- High Pressure Coolant Injection System
- Reactor Core Isolation Cooling
- Automatic Depressurization System
- Low-Low Set Logic
- Alternate Rod Insertion Logic
- Reactor Recirculation System
- Emergency Diesel Generators
- Safety Relief Valves

The ATTS is a solid-state electronic trip system designed to provide monitoring of process parameters. The system consists of primary sensors, master trip assemblies, slave trip assemblies, calibration units, card file assemblies, and other accessories.

HNP FSAR References

Additional information may be found in Unit 1 FSAR Section 7.18 and Unit 2 FSAR Section 7.8.

2.6.1(b) Nuclear Steam Supply Shutoff System [A71]

System Description

The purpose of the nuclear steam supply shutoff system is to isolate the reactor vessel and various other systems which carry radioactive fluids within the primary containment to prevent the release of radioactive materials.

Sensor elements are located in the reactor vessel, drywell, main steam lines (MSLs), MSL pipe chase, turbine building, the reactor water cleanup (RWCU) system, and areas around the RWCU system. The system functions are initiated when sensors actuate and provide input to relay control circuits, which in turn initiate the closure of containment isolation valves and initiate various other functions. The other functions include annunciation, post accident monitoring system recorder chart speed control, control room pressurization, and signal input to the primary containment isolation system.

HNP FSAR References

Additional information may be found in Unit 1 FSAR subsection 7.3.4 and Unit 2 FSAR subsection 7.3.2.

2.6.1(c) Primary Containment Isolation System [C61]

System Description

The purpose of the primary containment isolation system (PCIS) is to limit fission product releases by isolating fluid systems during accident/transient conditions.

The PCIS functions are initiated when sensors monitoring critical parameters activate and provide input to relay control circuits which in turn initiate closure of containment isolation valves or initiate various other functions. The other functions include initiating SGTS, isolating reactor building ventilation, isolating refueling floor ventilation, and isolating the off-gas system exhaust.

HNP FSAR References

Additional information may be found in Unit 1 FSAR Section 7.3 and Unit 2 FSAR subsection 7.3.2.

2.6.1(d) Reactor Protection System [C71]

System Description

The purpose of the reactor protection system (RPS) is to provide protection against the onset and consequences of conditions that challenge the integrity of the fuel barriers and the nuclear system process barrier by the initiation of an automatic scram.

The RPS is composed of two independent, dual channel monitor/trip systems, associated process system sensors, and annunciators. The RPS is designed to initiate a reactor scram to:

- Preserve the integrity of fuel cladding.
- Preserve the integrity of the reactor coolant pressure boundary (RCPB).
- Minimize the energy released during a loss-of-coolant accident (LOCA).

HNP FSAR References

Additional information may be found in Unit 1 FSAR Section 7.2 and Unit 2 FSAR Section 7.2.

2.6.1(e) Remote Shutdown System [C82]

System Description

The remote shutdown panels provide controls and indications to safely shut down the reactor for a selected number of components in a selected number of systems in the event the control room becomes uninhabitable.

2.6.1(f) Process Radiation Monitoring System [D11]

System Description

The purpose of the process radiation monitoring system is to provide input into the reactor protection system, primary containment isolation system, and others for system isolation.

HNP FSAR References

More information on this system can be found in Unit 1 FSAR Section 7.12 and Unit 2 FSAR Section 11.4.

2.6.1(g) Heat Trace System [G13]

System Description

The purpose of the heat trace system is to maintain piping, instrumentation, and equipment in working order during below freezing temperatures. A primary function is to maintain the sodium pentaborate solution in the standby liquid control system at a temperature high enough to prevent precipitation and solidification of the solution.

Standby liquid control storage tank temperature is maintained by adjusting the storage tank heater-indicating controller to maintain temperature control and prevent precipitation of the sodium pentaborate from solution. Thermostat controlled heat tracing is run along the pump suction piping to maintain suction piping solution temperature. A temperature versus concentration curve is monitored to ensure that sufficient margin will be maintained above saturation temperature.

HNP FSAR References

Additional information may be found in Unit 2 FSAR paragraph 4.2.3.4.2.

2.6.1(h) Plant AC Electrical System [R20]

System Description

The entire auxiliary power distribution system, station service, and emergency service systems consisting of both 1E and Non-1E systems, distribute power to all ac auxiliaries required to startup, operate, and shut down the plant.

The emergency service portion Class 1E distributes power to all loads essential to plant safety and normal plant operation ensuring power is available to perform a safe plant shutdown.

The auxiliary power distribution system distributes power to all auxiliaries necessary for normal plant operation.

The station auxiliary ac power system is divided into two portions: one for normal Non-Class 1E service and one for emergency Class 1E service. The emergency service portion distributes ac power required to shut down the reactor, maintain the shutdown condition, and operate all safety-related equipment necessary to mitigate the consequences of major accident conditions. The entire station auxiliary ac power system, both normal and emergency service portions, distributes power to all ac auxiliaries required to start up, operate, and shut down the plant.

HNP FSAR References

Additional information may be found in Unit 1 FSAR Sections 8.3 and 8.7 and Unit 2 FSAR subsection 8.3.1.

2.6.1(i) DC Electrical System [R42]

System Description

The purpose of the dc distribution system is to provide reliable power from a rectified ac source (battery charger) with a battery backup to supply dc loads, control power, logic power, and inverters for all operational modes.

The battery system provides an uninterruptible source of power to normal Non-Class 1E and emergency Class 1E loads such as motors, circuit breaker controls, operation of logic and control relays, emergency lighting, etc. The emergency power is required to safely shutdown the reactor, maintain the reactor in a shutdown condition, and operate all auxiliaries necessary for plant safety under all plant operational modes.

The dc electrical system includes the following:

- 125/250 V station battery system — Class 1E
- 125 V diesel generator battery system — Class 1E
- 125 V cooling tower battery system — Non-Class 1E
- 24/48 V instrumentation battery system — Non-Class 1E
- Battery for 120/240 V vital ac system — Non-Class 1E

HNP FSAR References

Additional information may be found in Unit 1 FSAR Section 8.5 and Unit 2 FSAR subsection 8.3.2.

2.6.1(j) Plant Communications System [R51]

System Description

The purpose of the plant communications system is to allow key personnel to communicate information about plant conditions and other pertinent information.

The intrasite communication system consists of a public address system; a private, dial telephone system; and a two-way radio communication system provided for paging and communication. The public address system which consists of handsets, amplifiers, loudspeakers, multi-tone generator, and associated equipment provides convenient, effective paging, and private conversational service. The private, automatic exchange dial telephone system is an electronic system of modular design utilizing stored program control and time division switching. A separate, two-way radio communication is provided to permit communication with mobile units and base stations within the range of the plant.

HNP FSAR References

Additional information may be found in Unit 1 FSAR Section 10.15 and Unit 2 FSAR subsection 9.5.2.

2.6.1(k) Power Transformers System [S11]

System Description

The in scope components for this system are the CD transformers. The function of these transformers is to provide power to 600V busses C or D from 4160V bus F during station blackout.

The transformers operate by dropping the voltage from 4160 volts to 600 volts.

HNP FSAR References

Additional information may be found in Unit 1 FSAR Section 8.3 and Unit 2 FSAR Section 8.3.

2.6.1(I) Emergency Response Facilities System [X75]

System Description

The purpose of the emergency response facilities is to help the plant operators, shift technical advisors, supervisory personnel, and the NRC in rapidly assessing the plant safety status during normal, transient, and accident conditions.

The NRC-emergency response data system (NRC-ERDS) is the response to the ERDS Rule published in 10 CFR 50 in 1991. It is used during an Alert emergency classification or higher to transmit certain data to the NRC operations center in Rockville, Maryland. The X75 system includes the safety parameter display system (SPDS), the technical support center (TSC) HVAC system, and the ERDS.

HNP FSAR References

For additional information see Unit 1 FSAR Section 7.21 and Unit 2 FSAR Section 7.9.

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Table 2.6-1 Electrical Components [Plant Wide] – Aging Management Review Results

Electrical Component	Intended Function	Environment	Material	Aging Effects	Aging Management Programs	Comments
Cable (Outside Containment)	Provide insulation resistance to preclude shorts, grounds, and unacceptable leakage currents	Inside Outside Submerged	Various Polymers Tinned and Bare Copper	Change in Insulation Resistance	Wetted Cable Activities Insulated Cables and Connections Program	The Insulated Cables and Connections Program was added to this line item in response to Draft Open Item 51 (3.7.2.2-2), SNC correspondence HL-6037, dated January 31, 2001.
Cable (Inside Containment)	Provide insulation resistance to preclude shorts, grounds, and unacceptable leakage currents	Inside	Various Polymers Tinned and Bare Copper	None	Insulated Cables and Connections Program	The Insulated Cables and Connections Program was added to this line item in response to Draft Open Item 51 (3.7.2.2-2), SNC correspondence HL-6037, dated January 31, 2001.
Electrical Connectors Splices, Terminal Blocks	Provide insulation resistance to preclude shorts, grounds, and unacceptable leakage currents	Inside Outside	Various Polymers Galvanized and Stainless Steel Tinned and Bare Copper	None	None	

Table 2.6-1 Electrical Components [Plant Wide] – Aging Management Review Results

Electrical Component	Intended Function	Environment	Material	Aging Effects	Aging Management Programs	Comments
Electrical Penetration Assemblies	Provide insulation resistance to preclude shorts, grounds, and unacceptable leakage currents	Inside	Various Polymers Painted Steel Stainless Steel	None	None (Penetration assemblies are covered by an EQ TLAA.)	
Phase Bussing	Provide insulation resistance to preclude shorts, grounds, and unacceptable leakage currents	Inside	Various Polymers Galvanized and Stainless Steel Tinned and Bare Copper	None	None	
Nelson Frames	Fission Product Barrier Fire Protection	Inside	Various Polymers Galvanized and Painted Steel	None	None	

2.6.2 Electrical Panels, Racks, & Cabinets [H11]

System Description

The purpose of the main control boards is to provide display, recording, and alarm to enable plant operators to monitor and control the equipment necessary for normal operations and transient/accident mitigation. H11 as described in this Specification includes only the supporting panels, racks, and cabinets.

HNP FSAR References

Additional information may be found in Unit 1 FSAR Section 7.16 and Unit 2 FSAR Section 3.2.

Table 2.6-2 Electrical Panels, Racks, & Cabinets [H11] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Electrical panels, racks and cabinets	Structural Support Shelter/Protection Nonsafety Related Structural Support	Inside	Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	

2.6.3 Instrument Racks, Panels, & Enclosures [H21]

System Description

The purpose of the auxiliary control panels is to provide system information and control to allow operators to operate equipment from outside the main control room (MCR) in the reactor building, turbine building, and other auxiliary buildings.

The actual controls for each system are included in specific functions for the respective system.

HNP FSAR References

Additional information may be found in Unit 1 FSAR Section 7.16 and Unit 2 FSAR Section 3.10.

Table 2.6-3 Instrument Racks, Panels, & Enclosures [H21] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Instrument racks, panels and enclosures	Structural Support Nonsafety Related Structural Support	Inside	Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	

2.6.4 Switchyard [S40]

System Description

The high voltage switchyard consists of two sections, a 500 kV switchyard and a 230 kV switchyard. A 500/230 kV autotransformer connects the 500 kV switchyard to the 230 kV switchyard. The transmission network interconnections at HNP consist of four 500 kV lines and four 230 kV lines.

The low voltage (24 kV) switchyard contains one main transformer for each unit, unit auxiliary transformers 1A, 1B, 2A, and 2B, and startup auxiliary transformers 1C, 1D, 2C, and 2D. Offsite power is supplied from the high voltage switchyard to the startup auxiliary transformers via three physically independent 230 kV circuits. The startup auxiliary transformers then supply power to the safety related portion of the onsite distribution system.

A switchhouse containing relaying and controls is provided in the high voltage switchyard.

This section has been added in response to the 10 CFR 54.37(b) review of NRC Regulatory Issue Summary (RIS) 2007-16, Revision 1, relating to LR-ISG-02 concerning recovery from a station blackout (SBO) event.

HNP FSAR References

Additional information may be found in Unit 2 FSAR Section 8.2.

Table 2.6-4 Switchyard [S40] – Aging Management Review Results

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Cable (Outside Containment)	Provide insulation resistance to preclude shorts, grounds, and unacceptable leakage currents	Inside Outside	Various Polymers Tinned and Bare Copper	Change in Insulation Resistance	Wetted Cable Activities Insulated Cables and Connections Program	Added in response to the 10 CFR 54.37(b) review of NRC Regulatory Issue Summary (RIS) 2007-16, Revision 1, relating to LR-ISG-02 concerning recovery from a station blackout (SBO) event.
Electrical Connectors, Splices, Terminal Blocks	Provide insulation resistance to preclude shorts, grounds, and unacceptable leakage currents	Inside Outside	Various Polymers Galvanized and Stainless Steel Tinned and Bare Copper	None	None	Added in response to the 10 CFR 54.37(b) review of NRC Regulatory Issue Summary (RIS) 2007-16, Revision 1, relating to LR-ISG-02 concerning recovery from a station blackout (SBO) event.
High-Voltage Insulators	Insulate and support an electrical conductor	Outside	Porcelain, Malleable Iron, Galvanized Steel, Cement	None	None	Added in response to the 10 CFR 54.37(b) review of NRC Regulatory Issue Summary (RIS) 2007-16, Revision 1, relating to LR-ISG-02 concerning recovery from a station blackout (SBO) event.
Instrument racks, panels and enclosures	Structural Support Nonsafety Related Structural Support	Inside	Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program	Added in response to the 10 CFR 54.37(b) review of NRC Regulatory Issue Summary (RIS) 2007-16, Revision 1, relating to LR-ISG-02 concerning recovery from a station blackout (SBO) event.

Structural Component	Intended Functions	Environment	Material	Aging Effects	Aging Management Programs	Comments
Switchyard Bus and Connections	Provide Electrical Connections	Outside	Aluminum, Copper, Bronze, Stainless Steel, Galvanized Steel	None	None	Added in response to the 10 CFR 54.37(b) review of NRC Regulatory Issue Summary (RIS) 2007-16, Revision 1, relating to LR-ISG-02 concerning recovery from a station blackout (SBO) event.
Transmission Conductors and Connections	Provide Electrical Connections	Outside	Aluminum, Steel	None	None	Added in response to the 10 CFR 54.37(b) review of NRC Regulatory Issue Summary (RIS) 2007-16, Revision 1, relating to LR-ISG-02 concerning recovery from a station blackout (SBO) event.

3 REFERENCES

3.1 Edwin I. Hatch License Renewal Docket

3.1.1 SNC Letter HL-5853, “Edwin I. Hatch Nuclear Plant Units 1 and 2, Application for License Renewal,” dated February29, 2003.

3.1.2 SNC Letter HL-5979, “Edwin I. Hatch Nuclear Plant Units 1 and 2, Response to License Renewal Requests for Additional Information,” dated August 29, 2000.

3.1.3 SNC Letter HL-6002, “Edwin I. Hatch Nuclear Plant Units 1 and 2, Response to License Renewal Requests for Additional Information,” dated October 10, 2000.

3.1.4 SNC Letter HL-6024, “Edwin I. Hatch Nuclear Plant Units 1 and 2, Annual Update of License Renewal Application,” dated December 15, 2000.

3.1.5 SNC Letter HL-6037, “Edwin I. Hatch Nuclear Plant, Transmittal of Responses to License Renewal Draft Open Items,” dated January 31, 2001.

3.1.6 SNC Letter HL-6092, “Edwin I. Hatch Nuclear Plant Units 1 and 2, License Renewal Draft SER Open Items,” dated June 5, 2001.

3.1.7 SNC Letter HL-6123, “Edwin I. Hatch Nuclear Plant Units 1 and 2, Transmittal of Additional Information for License Renewal Draft Safety Evaluation Report Open Items,” dated September 5, 2001.

3.1.8 SNC Emails from R.D. Baker to W.F.Burton, dated April 21, 2000 through October 13, 2001 (Attachment C).

3.1.9 E.I. Hatch Final Safety Analysis Report, Chapter 18.

3.2 NRC References

3.2.1 10 CFR 54, The License Renewal Rule.

3.2.2 NUREG 1803, Rev. 1; Safety Evaluation Related to the License Renewal of the Edwin I. Hatch Nuclear Plant, Units 1 and 2.

3.2.3 RIS 2007-16, Revision 1: Implementation of the Requirements of 10 CFR 54.37(b) for Holders of Renewed Licenses

3.3 Other References

3.3.1 NMP-ES-063, License Renewal Program

3.3.2 NMP-ES-063-001, License Renewal Program Implementation Instructions

3.3.3 NMP-ES-063-003, 10 CFR 54.37(b) Review Instructions

3.3.4 NMP-ES-063-003-F01, 10 CFR 54.37(b) Review Form

3.3.5 NMP-ES-063-004, 10 CFR 54.37(b) Scoping Determination Instructions

3.3.6 NMP-ES-063-004-F01, 10 CFR 54.37(b) Scoping Determination Form

3.3.7 NMP-ES-063-005, 10 CFR 54.37(b) Commodity Evaluation Instructions

3.3.8 NMP-ES-063-005-F01, 10 CFR 54.37(b) Commodity Evaluation Form

3.3.9 NMP-ES-063-006, 10 CFR 54.37(b) Aging Management Review Evaluation Instructions

3.3.10 NMP-ES-063-006-F01, 10 CFR 54.37(b) AMR Evaluation Form

3.3.11 NMP-ES-063-007, 10 CFR 54.37(b) TLAA Evaluation Instructions

3.3.12 NMP-ES-063-007-F01, 10 CFR 54.37(b) TLAA Evaluation Form

3.3.13 NMP-ES-063-GL01, Hatch License Renewal Program Manual

3.3.14 NEI 95-10, Revision 6, Guidelines for Implementing the Requirements of 10 CFR Part 54 - The License Renewal Rule.

Attachment A
10 Program Elements

(Excerpted from Appendix A to NUREG-1800)

A.1.2.3 Aging Management Program Elements

A.1.2.3.1 Scope of Program

The specific program necessary for license renewal should be identified. The scope of the program should include the specific structures and components, the aging of which the program manages.

A.1.2.3.2 Preventive Actions

1. The activities for prevention and mitigation programs should be described. These actions should mitigate or prevent aging degradation.

2. Some condition or performance monitoring programs do not rely on preventive actions and thus, this information need not be provided.

3. In some cases, condition or performance monitoring programs may also rely on preventive actions. The specific prevention activities should be specified.

A.1.2.3.3 Parameters Monitored or Inspected

1. This program element should identify the aging effects that the program manages and should provide a link between the parameter or parameters that will be monitored and how the monitoring of these parameters will ensure adequate aging management.

2. For a condition monitoring program, the parameter monitored or inspected should be capable of detecting the presence and extent of aging effects. Some examples are measurements of wall thickness and detection and sizing of cracks.

3. For a performance monitoring program, a link should be established between the degradation of the particular structure or component-intended function(s) and the parameter(s) being monitored. An example of linking the degradation of a passive component-intended function with the performance being monitored is linking the fouling of heat exchanger tubes with the heat transfer-intended function. This could be monitored by periodic heat balances. Since this example deals only with one intended function of the tubes (heat transfer), additional programs may be necessary to manage other intended function(s) of the tubes, such as pressure boundary. Thus, a performance monitoring program must ensure that the structure and components are capable of performing their intended functions by using a combination of performance monitoring and evaluation (if outside acceptable limits of acceptance criteria) that demonstrate that a change in performance characteristic is a result of an age-related degradation mechanism.

4. For prevention or mitigation programs, the parameters monitored should be the specific parameters being controlled to achieve prevention or mitigation of aging effects. An example is the coolant oxygen level that is being controlled in a water chemistry program to mitigate pipe cracking.

A.1.2.3.4 Detection of Aging Effects

1. Detection of aging effects should occur before there is a loss of the structure- and component-intended function(s). The parameters to be monitored or inspected should be appropriate to ensure that the structure- and component-intended function(s) will be adequately maintained for license renewal under all CLB design conditions. Thus, the discussion for the “detection of aging effects” program element should address (a) how the program element would be capable of detecting or identifying the occurrence of age-related degradation or an aging effect prior to a loss of structure and component (SC)-intended function or (b) for preventive/mitigative programs, how the program would be capable of preventing or mitigating their occurrence prior to a loss of a SC-intended function. The discussion should provide information that links the parameters to be monitored or inspected to the aging effects being managed.

2. Nuclear power plants are licensed based on redundancy, diversity, and defense-in-depth principles. A degraded or failed component reduces the reliability of the system, challenges safety systems, and contributes to plant risk. Thus, the effects of aging on a structure or component should be managed to ensure its availability to perform its intended function(s) as designed when called upon. In this way, all system level-intended function(s), including redundancy, diversity, and defense-in-depth consistent with the plant’s CLB, would be maintained for license renewal. A program based solely on detecting structure and component failure should not be considered as an effective AMP for license renewal.

3. This program element describes “when,” “where,” and “how” program data are collected (i.e., all aspects of activities to collect data as part of the program).

4. For condition monitoring programs, the method or technique (such as visual, volumetric, or surface inspection), frequency, and timing of new, one-time inspections may be linked to plant-specific or industry-wide operating experience. The discussion should provide justification, including codes and standards referenced, that the technique and frequency are adequate to detect the aging effects before a loss of SC-intended function. A program based solely on detecting SC failures is not considered an effective AMP.

   For a condition monitoring program, when sampling is used to represent a larger population of SCs, applicants should provide the basis for the inspection population and sample size. The inspection population should be based on such aspects of the SCs as a similarity of materials of construction, fabrication, procurement, design, installation, operating environment, or aging effects. The sample size should be based on such aspects of the SCs as the specific aging effect, location, existing technical information, system and structure design, materials of construction, service environment, or previous failure history. The samples should be biased toward locations most susceptible to the specific aging effect of concern in the period of extended operation. Provisions on expanding the sample size when degradation is detected in the initial sample should also be included.

5. For a performance monitoring program, the “detection of aging effects” program element should discuss and establish the monitoring methods that will be used for performance monitoring. In addition, the “detection of aging effects” program element should also establish and justify the frequency that will be used to implement these performance monitoring activities.

1. For a prevention or mitigation program, the “detection of aging effects” program element should discuss and establish the monitoring methods that the program will use to monitor for the preventive or mitigative parameters that the program controls and should justify the frequency of performing these monitoring activities.

A.1.2.3.5 Monitoring and Trending

1. Monitoring and trending activities should be described, and they should provide a prediction of the extent of degradation and thus effect timely corrective or mitigative actions. Plant-specific and/or industrywideoperating experience may be considered in evaluating the ppropriateness of the technique and frequency.

2. This program element describes “how” the data collected are evaluated and may also include trending for a forward look. This includes an evaluation of the results against the acceptance criteria and a prediction regarding the rate of degradation in order to confirm that timing of the next scheduled inspection will occur before a loss of SC-intended function. Although aging indicators may be quantitative or qualitative, aging indicators should be quantified, to the extent possible, to allow trending. The parameter or indicator trended should be described. The methodology for analyzing the inspection or test results against the acceptance criteria should be described. Trending is a comparison of the current monitoring results with previous monitoring results in order to make predictions for the future.

A.1.2.3.6 Acceptance Criteria

1. The quantitative or qualitative acceptance criteria of the program and its basis should be described. The acceptance criteria, against which the need for corrective actions are evaluated, should ensure that the structure- and component-intended function(s) are maintained consistent with all CLB design conditions during the period of extended operation. The program should include a methodology for analyzing the results against applicable acceptance criteria.

   For example, carbon steel pipe wall thinning may occur under certain conditions due to FAC. An AMP for FAC may consist of periodically measuring the pipe wall thickness and comparing that to a specific minimum wall acceptance criterion. Corrective action is taken, such as piping replacement, before deadweight, seismic, and other loads, and this acceptance criterion must be appropriate to ensure that the thinned piping would be able to carry these CLB design loads. This acceptance criterion should provide for timely corrective action before loss of intended function under these CLB design loads.

2. Acceptance criteria could be specific numerical values, or could consist of a discussion of the process for calculating specific numerical values of conditional acceptance criteria

to ensure that the structure- and component-intended function(s) will be maintained under all CLB design conditions. Information from available references may be cited.

2. It is not necessary to justify any acceptance criteria taken directly from the design basis information that is included in either the final safety analysis report (FSAR), plant Technical Specifications, or other codes and standards incorporated by reference into NRC regulations; they are a part of the CLB. Nor is it necessary to justify the acceptance criteria that have been established in either NRC-accepted or NRC-endorsed methodology, such as those that may be given in NRC-approved or NRC-endorsed topical reports or NRC-endorsed codes and standards; the acceptance criteria referenced in these types of documents have been subject to an NRC review process and have been approved or endorsed for their application to an NRC-approved or NRC endorsed evaluation methodology. Also, it is not necessary to discuss CLB design loads if the acceptance criteria do not permit degradation because a structure and component without degradation should continue to function as originally designed. Acceptance criteria, which do permit degradation, are based on maintaining the intended function under all CLB design loads.

A.1.2.3.7 Corrective Actions

1. Actions to be taken when the acceptance criteria are not met should be described in appropriate detail or referenced to source documents. Corrective actions, including root cause determination and prevention of recurrence, should be timely.

3. If corrective actions permit analysis without repair or replacement, the analysis should ensure that the structure- and component-intended function(s) are maintained consistent with the CLB.

4. For safety-related components, an applicant's 10 CFR Part 50, Appendix B, Quality Assurance Program, is an acceptable means to confirm that the corrective actions are done in a manner consistent with the condition monitoring program, preventive program, mitigative program, or performance monitoring program that is credited for aging management. For example, for a plant-specific condition monitoring program that is based on ASME Section XI requirements, the implementation of the Appendix B program should ensure that any corrective actions are performed in accordance with applicable Code requirements or NRC-approved Code cases.

A.1.2.3.8 Confirmation Process

1. The confirmation process should be described. The process ensures that preventive actions are adequate and that appropriate corrective actions have been completed and are effective.

2. The effectiveness of prevention and mitigation programs should be verified periodically. For example, in managing internal corrosion of piping, a mitigation program (water chemistry) may be used to minimize susceptibility to corrosion. However, it also may be necessary to have a condition monitoring program (ultrasonic inspection) to verify that corrosion is indeed insignificant.

3. When corrective actions are necessary, there should be follow-up activities to confirm that the corrective actions have been completed, a root cause determination was performed, and recurrence will be prevented.

A.1.2.3.9 Administrative Controls

1. The administrative controls of the program should be described. Administrative controls provide a formal review and approval process.

2. Any AMPs to be relied on for license renewal should have regulatory and administrative controls. That is the basis for 10 CFR 54.21(d) to require that the FSAR supplement include a summary description of the programs and activities for managing the effects of aging for license renewal. Thus, any informal programs relied on to manage aging for license renewal must be administratively controlled and included in the FSAR supplement.

A.1.2.3.10 Operating experience

1. Consideration of future plant-specific and industry operating experience relating to aging management programs should be discussed. Reviews of operating experience by the applicant in the future may identify areas where aging management programs should be enhanced or new programs developed. An applicant should commit to a future review of plant-specific and industry operating experience to confirm the effectiveness of its aging management programs or indicate a need to develop new aging management programs. This information should provide objective evidence to support the conclusion that the effects of aging will be managed adequately so that the structure and component intended function(s) will be maintained during the period of extended operation.

2. Operating experience with existing programs should be discussed. The operating experience of AMPs that are existing programs, including past corrective actions resulting in program enhancements or additional programs, should be considered. A past failure would not necessarily invalidate an AMP because the feedback from operating experience should have resulted in appropriate program enhancements or new programs. This information can show where an existing program has succeeded and where it has failed (if at all) in intercepting aging degradation in a timely manner. This information should provide objective evidence to support the conclusion that the effects of aging will be managed adequately so that the structure- and component-intended function(s) will be maintained during the period of extended operation.

3. For new AMPs that have yet to be implemented at an applicant’s facility, the programs have not yet generated any operating experience (OE). However, there may be other relevant plant-specific OE at the plant or generic OE in the industry that is relevant to the AMP’s program elements even though the OE was not identified as a result of the implementation of the new program. Thus, for new programs, an applicant may need to consider the impact of relevant OE that results from the past implementation of its existing AMPs that are existing programs and the impact of relevant generic OE on developing the program elements. Therefore, operating experience applicable to new programs should be discussed. Additionally, an applicant should commit to a review of future plant-specific and industry operating experience for new programs to confirm their effectiveness.

APPENDIX B

TYPICAL STRUCTURE, COMPONENT AND COMMODITY GROUPINGS AND ACTIVE/PASSIVE DETERMINATIONS FOR THE INTEGRATED PLANT ASSESSMENT

TYPICAL STRUCTURE, COMPONENT AND COMMODITY GROUPINGS
AND ACTIVE/PASSIVE DETERMINATIONS FOR THE
INTEGRATED PLANT ASSESSMENT

ITEM	CATEGORY	STRUCTURE, COMPONENT, OR COMMODITY GROUPING	STRUCTURE, COMPONENT, OR COMMODITY GROUPING MEETS 10CFR54.21(a)(1)(i) (YES/NO)
1	Structures	Category I Structures Note: If a dam is included in this category – see Appendix C, Reference 4 for guidance on an acceptable aging management program.	Yes
2	Structures	Primary Containment Structure	Yes
3	Structures	Intake Structures	Yes
4	Structures	Intake Canal	Yes
5	Structures	Other Non-Category I Structures Within the Scope of License Renewal Note: If a dam is included in this category – see Appendix C, Reference 4 for guidance on an acceptable aging management program	Yes
6	Structures	Equipment Supports and Foundations	Yes
7	Structures	Structural Bellows	Yes
8	Structures	Controlled Leakage Doors	Yes
9	Structures	Penetration Seals	Yes

TYPICAL STRUCTURE, COMPONENT AND COMMODITY GROUPINGS
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ITEM	CATEGORY	STRUCTURE, COMPONENT, OR COMMODITY GROUPING	STRUCTURE, COMPONENT, OR COMMODITY GROUPING MEETS 10CFR54.21(a)(1)(i) (YES/NO)
10	Structures	Compressible Joints and Seals	Yes
11	Structures	Fuel Pool and Sump Liners	Yes
12	Structures	Concrete Curbs	Yes
13	Structures	Offgas Stack and Flue	Yes
14	Structures	Fire Barriers	Yes
15	Structures	Pipe Whip Restraints and Jet Impingement Shields	Yes
16	Structures	Electrical and Instrumentation and Control Penetration Assemblies	Yes
17	Structures	Instrumentation Racks, Frames, Panels, and Enclosures	Yes
18	Structures	Electrical Panels, Racks, Cabinets, and Other Enclosures	Yes

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ITEM	CATEGORY	STRUCTURE, COMPONENT, OR COMMODITY GROUPING	STRUCTURE, COMPONENT, OR COMMODITY GROUPING MEETS 10CFR54.21(a)(1)(i) (YES/NO)
19	Structures	Cable Trays and Supports	Yes
20	Structures	Conduit	Yes
21	Structures	Tube Track	Yes
22	Structures	Reactor Vessel Internals	Yes
23	Structures	ASME Class 1 Hangers and Supports	Yes
24	Structures	Non-ASME Class 1 Hangers and Supports	Yes
25	Structures	Snubbers	No
26	Reactor Coolant Pressure Boundary Components (Note: the components of the RCPB are defined by each plant's CLB and site specific documentation.	ASME Class 1 Piping	Yes

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ITEM	CATEGORY	STRUCTURE, COMPONENT, OR COMMODITY GROUPING	STRUCTURE, COMPONENT, OR COMMODITY GROUPING MEETS 10CFR54.21(a)(1)(i) (YES/NO)
27	Reactor Coolant Pressure Boundary Components	Reactor Vessel	Yes
28	Reactor Coolant Pressure Boundary Components	Reactor Coolant Pumps	Yes (Casing)
29	Reactor Coolant Pressure Boundary Components	Control Rod Drives	No
30	Reactor Coolant Pressure Boundary Components	Control Rod Drive Housing	Yes
31	Reactor Coolant Pressure Boundary Components	Steam Generators	Yes
32	Reactor Coolant Pressure Boundary Components	Pressurizers	Yes
33	Non-Class I Piping Components	Underground Piping	Yes
34	Non-Class I Piping Components	Piping in Low Temperature Demineralized Water Service	Yes
35	Non-Class I Piping Components	Piping in High Temperature Single Phase Service	Yes

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27	Reactor Coolant Pressure Boundary Components	Reactor Vessel	Yes
28	Reactor Coolant Pressure Boundary Components	Reactor Coolant Pumps	Yes (Casing)
29	Reactor Coolant Pressure Boundary Components	Control Rod Drives	No
30	Reactor Coolant Pressure Boundary Components	Control Rod Drive Housing	Yes
31	Reactor Coolant Pressure Boundary Components	Steam Generators	Yes
32	Reactor Coolant Pressure Boundary Components	Pressurizers	Yes
33	Non-Class I Piping Components	Underground Piping	Yes
34	Non-Class I Piping Components	Piping in Low Temperature Demineralized Water Service	Yes
35	Non-Class I Piping Components	Piping in High Temperature Single Phase Service	Yes

ITEM	CATEGORY	STRUCTURE, COMPONENT, OR COMMODITY GROUPING	STRUCTURE, COMPONENT, OR COMMODITY GROUPING MEETS 10CFR54.21(a)(1)(i) (YES/NO)
45	Pumps	ECCS Pumps	Yes (Casing)
46	Pumps	Service Water and Fire Pumps	Yes (Casing)
47	Pumps	Lube Oil and Closed Cooling Water Pumps	Yes (Casing)
48	Pumps	Condensate Pumps	Yes (Casing)
49	Pumps	Borated Water Pumps	Yes (Casing)
50	Pumps	Emergency Service Water Pumps	Yes (Casing)
51	Pumps	Submersible Pumps	Yes (Casing)
52	Turbines	Turbine Pump Drives (excluding pumps)	Yes (Casing)
53	Turbines	Gas Turbines	Yes (Casing)

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54	Turbines	Controls (Actuator and Overspeed Trip)	No
55	Engines	Fire Pump Diesel Engines	No
56	Emergency Diesel Generators	Emergency Diesel Generators	No
57	Heat Exchangers	Condensers	Yes
58	Heat Exchangers	HVAC Coolers (including housings)	Yes
59	Heat Exchangers	Primary Water System Heat Exchangers	Yes
60	Heat Exchangers	Treated Water System Heat Exchangers	Yes
61	Heat Exchangers	Closed Cooling Water System Heat Exchangers	Yes
62	Heat Exchangers	Lubricating Oil System Heat Exchangers	Yes

ITEM	CATEGORY	STRUCTURE, COMPONENT, OR COMMODITY GROUPING	STRUCTURE, COMPONENT, OR COMMODITY GROUPING MEETS 10CFR54.21(a)(1)(i) (YES/NO)
63	Heat Exchangers	Raw Water System Heat Exchangers	Yes
64	Heat Exchangers	Containment Atmospheric System Heat Exchangers	Yes
65	Miscellaneous Process Components	Gland Seal Blower	No
66	Miscellaneous Process Components	Recombiners	The applicant shall identify the intended function and apply the IPA process to determine if the grouping is active or passive.
67	Miscellaneous Process Components	Flexible Connectors	Yes
68	Miscellaneous Process Components	Strainers	Yes
69	Miscellaneous Process Components	Rupture Disks	Yes
70	Miscellaneous Process Components	Steam Traps	Yes
71	Miscellaneous Process Components	Restricting Orifices	Yes

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72	Miscellaneous Process Components	Air Compressor	No
73	Electrical and I&C	Alarm Unit (e.g., fire detection devices)	No
74	Electrical and I&C	Analyzers (e.g., gas analyzers, conductivity analyzers)	No
75	Electrical and I&C	Annunciators (e.g., lights, buzzers, alarms)	No
76	Electrical and I&C	Batteries	No
77	Electrical and I&C	Cables and Connections, Bus, electrical portions of Electrical and I&C Penetration Assemblies, Includes fuse holders outside of cabinets of active electrical SCs (e.g., electrical penetration assembly cables and connections, connectors, electrical splices, terminal blocks, power cables, control cables, instrument cables, insulated cables, communication cables, uninsulated ground conductors, transmission conductors, isolated-phase bus, nonsegregated-phase bus, segregated-phase bus, switchyard bus)	Yes
78	Electrical and I&C	Chargers, Converters, Inverters (e.g., converters-voltage/current, converters-voltage/pneumatic, battery chargers/inverters, motor-generator sets)	No
79	Electrical and I&C	Circuit Breakers (e.g., air circuit breakers, molded case circuit breakers, oil-filled circuit breakers)	No

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80	Electrical and I&C	Communication Equipment (e.g., telephones, video or audio recording or playback equipment, intercoms, computer terminals, electronic messaging, radios, transmission line traps and other power-line carrier equipment)	No
81	Electrical and I&C	Electric Heaters,	No, Yes for a Pressure Boundary if applicable, See Appendix C Reference 2
82	Electrical and I&C	Heat Tracing	No See Appendix C Reference 2
83	Electrical and I&C	Electrical Controls and Panel Internal Component Assemblies (may include internal devices such as, but not limited to, switches, breakers, indicating lights, fuse holders, etc.) (e.g., main control board, HVAC control board)	No
84	Electrical and I&C	Elements, RTDs, Sensors, Thermocouples, Transducers (e.g., conductivity elements, flow elements, temperature sensors, radiation sensors,watt transducers, thermocouples, RTDs, vibration probes, amp transducers, frequency transducers, power factor transducers, speed transducers, var. transducers, vibration transducers, voltage transducers)	No Yes for a Pressure Boundary if applicable
85	Electrical and I&C	Fuses	No See Appendix C Reference 3
86	Electrical and I&C	Generators, Motors (e.g., emergency diesel generators, ECCS and emergency service water pump motors, small motors, motor-generator sets, steam turbine generators, combustion turbine generators, fan motors, pump motors, valve motors, air compressor motors)	No

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87	Electrical and I&C	High-voltage Insulators (e.g., porcelain switchyard insulators, transmission line insulators)	Yes
88	Electrical and I&C	Surge Arresters (e.g., switchyard surge arresters, lightning arresters, surge suppressers, surge capacitors, protective capacitors)	No
89	Electrical and I&C	Indicators (e.g., differential pressure indicators, pressure indicators, flow indicators, level indicators, speed indicators, temperature indicators, analog indicators, digital indicators, LED bar graph indicators, LCD indicators)	No
90	Electrical and I&C	Isolators (e.g., transformer isolators, optical isolators, isolation relays, isolating transfer diodes)	No
91	Electrical and I&C	Light Bulbs (e.g., indicating lights, emergency lighting, incandescent light bulbs, fluorescent light bulbs)	No See Appendix C Reference 2
92	Electrical and I&C	Loop Controllers (e.g., differential pressure indicating controllers, flow indicating controllers, temperature controllers, controllers, speed controllers, programmable logic controller, single loop digital controller, process controllers, manual loader, selector station, hand/auto station, auto/manual station)	No
93	Electrical and I&C	Meters (e.g., ammeters, volt meters, frequency meters, var meters, watt meters, power factor meters, watt-hour meters)	No
94	Electrical and I&C	Power Supplies	No

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95	Electrical and I&C	Radiation Monitors (e.g., area radiation monitors, process radiation monitors)	No
96	Electrical and I&C	Recorders (e.g., chart recorders, digital recorders, events recorders)	No
97	Electrical and I&C	Regulators (e.g., voltage regulators)	No
98	Electrical and I&C	Relays (e.g., protective relays, control/logic relays, auxiliary relays)	No
99	Electrical and I&C	Signal Conditioners	No
100	Electrical and I&C	Solenoid Operators	No
101	Electrical and I&C	Solid-State Devices (e.g., transistors, circuit boards, computers)	No
102	Electrical and I&C	Switches (e.g., differential pressure indicating switches, differential pressure switches, pressure indicator switches, pressure switches, flow switches, conductivity switches, level indicating switches, temperature indicating switches, temperature switches, moisture switches, position switches, vibration switches, level switches, control switches, automatic transfer switches, manual transfer switches, manual disconnect switches, current switches, limit switches, knife switches)	No

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103	Electrical and I&C	Switchgear, Load Centers, Motor Control Centers, Distribution Panel Internal Component Assemblies (may include internal devices such as, but not limited to, switches, breakers, indicating lights, etc.) (e.g., 4.16 kV switchgear, 480V load centers, 480V motor control centers, 250 VDC motor control centers, 6.9 kV switchgear units, 240/125V power distribution panels)	No
104	Electrical and I&C	Transformers (e.g., instrument transformers, load center transformers, small distribution transformers, large power transformers, isolation transformers, coupling capacitor voltage transformers)	No See Appendix C Reference 2
105	Electrical and I&C	Transmitters (e.g., differential pressure transmitters, pressure transmitters, flow transmitters, level transmitters, radiation transmitters, static pressure transmitters)	No
106	Valves	Hydraulic Operated Valves	Yes (Bodies)
107	Valves	Explosive Valves	Yes (Bodies)
108	Valves	Manual Valves	Yes (Bodies)
109	Valves	Small Valves	Yes (Bodies)
110	Valves	Motor-Operated Valves	Yes (Bodies)

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111	Valves	Air-Operated Valves	Yes (Bodies)
112	Valves	Main Steam Isolation Valves	Yes (Bodies)
113	Valves	Small Relief Valves	Yes (Bodies)
114	Valves	Check Valves	Yes (Bodies)
115	Valves	Safety Relief Valves	Yes (Bodies)
116	Valves	Dampers, louvers, and gravity dampers	Yes (Housings)
117	Tanks	Air Accumulators	Yes
118	Tanks	Discharge Accumulators (Dampers)	Yes
119	Tanks	Boron Acid Storage Tanks	Yes

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120	Tanks	Above Ground Oil Tanks	Yes
121	Tanks	Underground Oil Tanks	Yes
122	Tanks	Demineralized Water Tanks	Yes
123	Tanks	Neutron Shield Tank	Yes
124	Fans	Ventilation Fans (includes intake fans, exhaust fans, and purge fans)	Yes (Housings)
125	Fans	Other Fans	Yes (Housings)
126	Miscellaneous	Emergency Lighting	No
127	Miscellaneous	Hose Stations	Yes

Davis, James T.

From: Baker, Ray D.
Sent: Friday, April 21, 2000 8:31 AM
To: 'William F. Burton (E-mail)'
Subject: Discussion on Information Presentation in Hatch Application

Butch,

In response to your e-mail, I am providing the following discussion that should assist in clarifying questions regarding how we presented information in the application. The specific discussion relates to questions you asked regarding the Torus Submerged Components Inspection Program, A.3.7.

The first point of clarification relates to program scope. This program narrowly focuses on components that are submerged in torus water. Thus, it is only applicable to components inside the donut-shaped suppression pool ("torus"). A second point of clarification is to note that the program makes no distinction regarding material. It is applicable to components having an aging effect requiring management regardless of material, as long as the components are within the torus. One exception to the scope statement will be discussed below. Thus, the way a reader of the application can tell whether a component is submerged in torus water within the torus is by examining the applicable commodity entry line in the appropriate 6-column table in section 3 to see whether the Torus Submerged Components Inspection Program is credited in the Program column. One exception to this "rule" has to do with primary containment miscellaneous steel (p. 3.3-5 of app). Note that A.3.7 is not credited for this item although torus water is listed as one of the environments. These structural elements receive a separate inspection as a part of IWE/IWL requirements incorporated into our ISI program. Thus, ISI is credited instead of A.3.7.

In summary, the typical expectation for program coverage of components exposed to torus water can be summarized as follows:

- submerged components
  --carbon steel components typically will credit Protective Coatings and Torus Submerged Components Inspection
  --stainless steel components typically will credit Torus Submerged Components Inspection
- components exposed to torus water but not submerged in torus
  --these components will typically credit the Treated Water Systems Piping Inspections instead

The following bulleted items illustrate how the above points are carried through the application:

- p. 3.2-12 heat exchanger shell & tube sheet: these items are not submerged in the torus
- p. 3.2-13 piping: these items are not submerged in the torus
- p. 3.2-14 pump casings: these items are not submerged in the torus
- p. 3.2-15 strainers: the program is applicable regardless of material
- p. 3.2-15 thermowells & valve bodies: these items are not submerged in the torus
- p. 3.2-16 strainers: the program is applicable regardless of material
- p. 3.2-16 valve bodies: these items are not submerged in the torus
- p. 3.2-17 piping (C.2.2.3.1): these items are not submerged in the torus
- p. 3.2-17 piping (C.2.2.3.2): the program is applicable regardless of material
- p. 3.2-19 strainer: the program is applicable regardless of material
- p. 3.2-21 piping (C.2.2.3.2): the program is applicable regardless of material
- p. 3.2-22 piping (C.2.2.3.1): these items are not submerged in the torus
- p. 3.2-23 strainer: the program is applicable regardless of material
- p. 3.3-4 blind flange & CIV: these items are not submerged in the torus
- p. 3.3-5 miscellaneous steel: the submerged items are covered by ISI rather than A.3.7
- p. 3.3-5 piping: these items are not submerged in the torus
- C.2.2.11.1 & C.2.6.2 the items covered by these commodities are not submerged in the torus. Thus, A.3.7 is not applied to them.
- SRV piping is found on p. 3.2-6. Note that there is no carbon steel submerged associated with this. The submerged portion is stainless steel and has A.3.7 credited
- Vacuum relief piping is found in table 3.2.3-7 associated with T48. Note that carbon steel credits A.3.7 since some components are submerged.

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The 10-attributes tables associated with each commodity address aging management broken down by aging effects/mechanisms. Thus, for commodity C.2.2.3.1, Table -1 addresses several aging effects/mechanisms for submerged components. Table -2 addresses the same aging effects/mechanisms for components not submerged. Table -3 addresses a different aging effect/mechanism. Note that the non-submerged components credit the Treated Water Systems Piping Inspections whereas the submerged components credit the Torus Submerged Components Inspection as was discussed above.

On a separate question, the following discussion is provided to clarify certain information related to Fire Protection System scoping:
Functions X43-04, -05 and -07 encompass various fire protection (FP) systems such as L43, T43, U43, etc. A decision was made to group all fire protection into X43 for license renewal scoping. This was done because the one common system runs throughout the entire plant, through most of the buildings and structures. Thus for license renewal scoping , X43 encompasses some or all of the plant wide FP system (L43), reactor building FP system (T43), turbine building FP system (U43), radwaste building FP system (V43), circ water structure FP system (W43), other buildings FP system (X43), yard structures FP system (Y43), and control building FP system (Z43).

Also, attached is the updated pdf file containing page markups in a red-line/strikeout format. This update contains the conforming section 2 pages to include bolting in two instances.

Please let me know if we can provide additional clarification or discussion regarding any aspects of the application.

Ray Baker
8-992-7367

"Always do right. This will gratify some people and astonish the rest." -- Mark Twain

ATTACHMENT

annotated_page_markups.pdf (38...

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Component Groups Requiring an Aging Management Review

Table 2.3.4-16 Components Supporting Traveling Water Screens/ Trash Rack System [W33] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Material
Bolting	Pressure Boundary	Carbon Steel
Sight Glasses*	Pressure Boundary	Ceramic
Trash Racks	Debris Protection	Carbon Steel
Traveling Screen	Debris Protection	Carbon Steel Stainless Steel Copper Alloy*
Valve Bodies	Pressure Boundary	Carbon Steel

* No aging effects requiring management

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Component Groups Requiring an Aging Management Review

Table 2.4.3-1 Components Supporting Primary Containment [T23] Intended Functions and Their Component Functions

Structural Component	Component Functions	Material
Anchors and Bolts	Structural Support; Nonsafety Related Structural Support	Carbon Steel Galvanized Steel Stainless Steel
Blind Flange*	Fission Product Barrier	Carbon Steel
Bolting*	Fission Product Barrier	Carbon Steel
Containment Isolation Valves *	Fission Product Barrier	Carbon Steel
Containment Isolation Valves*	Fission Product Barrier	Stainless Steel
Containment Penetrations (Mechanical only)	Fission Product Barrier	Carbon Steel Stainless Steel
Miscellaneous Steel	Structural Support; Radiation Shielding; Pipe Whip Restraint; Nonsafety Related Structural Support	Carbon Steel Galvanized Steel
Piping*	Fission Product Barrier	Carbon Steel
Piping*	Fission Product Barrier	Stainless Steel
Reinforced Concrete	Structural Support; Shelter/Protection; Flood Barrier; Fission Product Barrier; Radiation Shielding; Missile Barrier; HE/ME Shielding	Concrete Carbon Steel
Steel Bellows (inside Vent Pipe)	Pressure Boundary; Fission Product Barrier	Carbon Steel Stainless Steel
Structural Steel	Structural Support; Shelter/Protection; Radiation Shielding; Missile Barrier; HE/ME Shielding; Pipe Whip Restraint; Nonsafety Related Structural Support; Pressure Boundary Fission Product Barrier; Exchange Heat	Carbon Steel Stainless Steel
Tubing*	Fission Product Barrier; Pressure Boundary	Stainless Steel
Unreinforced Concrete	Radiation Shielding	Unreinforced Concrete**
Vent Pipe, Vent Header, Downcomers	Fission Product Barrier; Pressure Boundary	Carbon Steel

* Piping and valves include components from systems P51, P21, T23, G51, G11, D11, and C51. These are all included in function T23-01, Torus/Drywell.
** No aging effects requiring management

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Table 3.2.1-2 Aging Effects Requiring Management for Components Supporting Nuclear Boiler System [B21] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Bolting / C.2.1.1.6 (Class 1)	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload	Torque Activities Inservice Inspection Program
Bolting / C.2.2.10.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program
Crack Growth Monitor / C.2.1.1.4 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections
Flow Nozzle / C.2.1.1.3 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Galvanic Susceptibility Inspections Component Cyclic or Transient Limit Program Flow Accelerated Corrosion Program Treated Water Systems Piping Inspections
Piping / C.2.2.1.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections ~~Flow Accelerated Corrosion Program~~
Piping / C.2.2.1.2 (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections

Table 3.2.1-2 Aging Effects Requiring Management for Components Supporting Nuclear Boiler System [B21] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Piping / C.2.2.2.2 (non-Class 1)	Pressure Boundary Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections
~~Piping / C.2.2.3.1 (non-Class 1)~~	~~Pressure Boundary~~ ~~Fission Product Barrier~~	~~Torus Water~~	~~Carbon Steel~~	~~Loss of Material~~ ~~Cracking~~	~~Suppression Pool Chemistry Control~~ ~~Torus Submerged Components Inspection Program~~
Piping / C.2.2.3.2 (non-Class 1)	Pressure Boundary Fission Product Barrier	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Torus Submerged Components Inspection Program
Piping / C.2.1.1.3 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Galvanic Susceptibility Inspections Component Cyclic or Transient Limit Program Flow Accelerated Corrosion Program Treated Water Systems Piping Inspections
Piping / C.2.1.1.4 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections
Piping / C.2.2.9.1 (Class 1)	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	~~Inservice Inspection Program~~ Gas Systems Component Inspections Passive Component Inspection Activities

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Table 3.2.1-2 Aging Effects Requiring Management for Components Supporting Nuclear Boiler System [B21] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Restricting Orifice / C.2.1.1.4 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Component Cyclic or Transient Limit Program Inservice Inspection Program Treated Water Systems Piping Inspections
Thermowell/ C.2.2.9.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities
Thermowell / C.2.1.1.4 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections
Valve Bodies / C.2.2.1.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control ~~Flow Accelerated Corrosion Program~~ Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections
Valve Bodies / C.2.2.1.2 (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections
Valve Bodies / C.2.2.9.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Inservice Inspection Program Passive Component Inspection Activities

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Table 3.2.3-4 Aging Effects Requiring Management for Components Supporting High Pressure Coolant Injection System [E41] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Bolting / C.2.2.10.1	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program
Bolting / C.2.2.10.2	Pressure Boundary Fission Product Barrier	Inside	Stainless Steel	Loss of Preload	Torque Activities
Flexible Connector / C.2.2.9.2	Pressure Boundary Fission Product Barrier	~~Dry~~ Wetted Gas	Stainless Steel	Cracking Loss of Material	Gas Systems Component Inspections
Piping / C.2.2.1.1	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Galvanic Susceptibility Inspections Flow Accelerated Corrosion Program Treated Water Systems Piping Inspections
Piping / C.2.2.2.1	Pressure Boundary Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections
Piping / C.2.2.2.2	Pressure Boundary Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Program Treated Water Systems Piping Inspections
Piping / C.2.2.3.1	Pressure Boundary Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections Torus Submerged Components Inspection Program Protective Coatings Program
Piping / C.2.2.3.2	Pressure Boundary Fission Product Barrier	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Torus Submerged Components Inspection Program

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Table 3.2.3-5 Aging Effects Requiring Management for Components Supporting Reactor Core Isolation Cooling System [E51] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/ Activity
Valve Bodies / C.2.2.9.2	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections ~~Passive Component Inspection Activities~~

Table 3.2.3-7 Aging Effects Requiring Management for Components Supporting Primary Containment Purge and Inerting System [T48] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Bolting / C.2.2.10.1	Pressure Boundary	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program
Bolting / C.2.2.10.2	Pressure Boundary	Inside	Stainless Steel	Loss of Preload	Torque Activities
Flex Hose / C.2.2.9.1	Pressure Boundary	Air	Stainless Steel	Cracking	Gas Systems Component Inspections
Nitrogen Tank Jacket / C.2.2.9.1	Structural Support	Air	Carbon Steel	Cracking Loss of Material	Gas Systems Component Inspections Passive Component Inspection Activities
Piping / C.2.2.3.1	Pressure Boundary	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspections Torus Submerged Components Inspection Program Protective Coatings Program
~~Piping / C.2.2.3.1~~	~~Pressure Boundary~~	~~Torus Water~~	~~Carbon Steel~~	~~Loss of Material~~ ~~Cracking~~	~~Suppression Pool Chemistry Control~~ ~~Torus Submerged Components Inspection Program~~
Piping / C.2.2.3.2	Pressure Boundary	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections
Piping / C.2.2.8.2	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required
Piping / C.2.2.9.1	Pressure Boundary	Wetted Gas	Carbon Steel	Cracking Loss of Material	Gas Systems Component Inspections Passive Component Inspection Activities
Pressure Buildup Coil / C.2.2.8.2	Pressure Boundary Exchange Heat	Dried Gas	Stainless Steel	Cracking	None Required
Rupture Disc / C.2.2.8.2	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required
Storage Tank / C.2.2.8.2	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required

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Table 3.2.4-2 Aging Effects Requiring Management for Components Supporting Refueling Platform Equipment Assembly [F15] Intended Functions and Their Component Functions

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Anchors and Bolts C.2.6.3	Structural support Nonsafety Related Structural Support	Inside	Carbon steel	Loss of material	Protective Coatings Program Overhead Crane and Refueling Platform Inspection Structural Monitoring Program
Miscellaneous Steel C.2.6.3	Structural support; Nonsafety Related Structural Support	Inside	Carbon steel	Loss of material	Protective Coatings Program Overhead Crane and Refueling Platform Inspection Structural Monitoring Program
Rivets	Structural Support	Inside	Aluminum	None	None Required
Structural Steel C.2.6.3	Structural support	Inside	Carbon steel	Loss of material	Protective Coatings Program Overhead Crane and Refueling Platform Inspection Structural Monitoring Program

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Table 3.2.4-7 Aging Effects Requiring Management for Components Supporting Plant Service Water System [P41] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Thermowell / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Cracking	PSW and RHRSW Inspection Program Plant Service Water and RHR Service Water Chemistry Control Program
Thermowell / C.2.2.6.2	Pressure Boundary	Raw Water	Stainless Steel	Loss of Material Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program
Valve Bodies / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program Galvanic Susceptibility Inspections
Valve Bodies / C.2.2.6.2	Pressure Boundary	Raw Water	Stainless Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program
Valve Bodies / C.2.2.6.3	Pressure Boundary	Raw Water	Copper Alloy	Loss of Material Cracking Flow Blocka[ge]	PSW and RHRSW Chemistry Control Program Structural Monitoring Program PSW and RHRSW Inspection Program
Venturi / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program Galvanic Susceptibility Inspections

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Table 3.2.4-13 Aging Effects Requiring Management for Components Supporting Reactor Building Crane [T31] Intended Functions and Their Component Functions

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Structural Steel/ C.2.6.3	Structural Support	Inside	Carbon Steel	Loss of Material	Overhead Crane and Refueling Platform Inspection Protective Coatings Program Structural Monitoring Program

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Table 3.2.4-16 Aging Effects Requiring Management for Components Supporting Traveling Water Screens / Trash Rack System [W33] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Trash Rack / C.2.6.3	Debris Protection	Submerged	Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program
Traveling Screen / C.2.6.3	Debris Protection	Submerged	Carbon Steel Stainless Steel	Loss of Material	Structural Monitoring Program
Traveling Screen / C.2.6.3	Debris Protection	Submerged	Copper Alloy	None	None Required
Valve Bodies / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program Plant Service Water and RHR Service Water Chemistry Control Program Galvanic Susceptibility Inspections
Bolting / C.2.2.10.1	Pressure Boundary	Outside	Carbon Steel	Loss of Material Loss of Preload	Torque Activities Protective Coatings Program

Table 3.2.4-18 Aging Effects Requiring Management for Components Supporting Fire Protection System [X43] Intended Functions and Their Intended Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Boltings / C.2.2.10.1	Pressure Boundary	Inside Outside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program
Fire Doors / C.2.3.4.3	Fire Barrier	Inside	Carbon Steel	Loss of Material	Fire Protection Activities
Fire Doors / C.2.3.4.3	Fire Barrier	Inside	Galvanized Steel Copper Alloy Stainless Steel Aluminum Nonmettalic, Inorganic Gypsum Fibers, Nonasbestos Synthetic Nonmetallic, Organic	None	None Required
Fire Hydrants / C.2.3.1	Pressure Boundary	Raw Water	Cast Iron	Loss of Material Cracking Flow Blockage	Fire Protection Activities
Fittings / C.2.3.1	Pressure Boundary	Raw Water Air	Cast Iron	Loss of Material Cracking Flow Blockage	Fire Protection Activities
Fittings / C.2.3.3	Pressure Boundary	Air	Copper Alloy Cast Iron	Cracking Loss of Material	Fire Protection Activities
Fusible Material / C.2.3.1	Pressure Boundary	Inside	Nonferrous Metal	Loss of Material Cracking	Fire Protection Activities
Kaowool and Hold-Down Straps / ~~C.2.3.4.3~~C.2.3.4.2	Fire Barrier	Inside	Galvanized Steel Insulation Material	~~Cracking~~Loss of Material Change in Material Properties	Fire Protection Activities

Table 3.3.1-3 Aging Effects Requiring Management for Components Supporting Primary Containment [T23] Intended Functions and Their Component Functions

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Anchors and Bolts / C.2.6.2	Structural Support; Nonsafety Related Structural Support	Containment Atmosphere; Embedded; Inside Torus Water	Carbon Steel Galvanized Steel Stainless Steel	Loss of Material	Protective Coatings Program Inservice Inspection Program Suppression Pool Chemistry Control
Blind Flange* / C.2.2.3.1	Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections
Containment Isolation Valves* / C.2.2.2.2	Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections
Containment Isolation Valves* / C.2.2.3.1	Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections
Containment Isolation Valves* / C.2.2.3.1	Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections
Containment Isolation Valves* / ~~C.2.2.6.2~~C.2.6.2	Fission Product Barrier	Raw Water	Carbon Steel	Loss of Material Cracking	Passive Component Inspection Activities
Containment Isolation Valves* / C.2.2.9.1	Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material	Gas Systems Component Inspections Passive Component Inspection Activities
Containment Isolation Valves* / C.2.2.9.2	Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspection
Containment Penetrations (Mechanical only) / C.2.6.2	Fission Product Barrier	Containment Atmosphere; Embedded; Inside	Carbon Steel Stainless Steel	Loss of Material	Protective Coatings Program Inservice Inspection Program Primary Containment Leakage Rate Testing Program

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Table 3.3.1-3 Aging Effects Requiring Management for Components Supporting Primary Containment [T23] Intended Functions and Their Component Functions (Continued)

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Structural Steel / C.2.6.2	Structural Support; Shelter/Protection; Pressure Boundary; Radiation Shielding; Nonsafety Related Structural Support; HE/ME Shielding; Missile Barrier; Pipe Whip Restraint; Fission Product Barrier; Exchange Heat	Containment Atmosphere; Inside; Torus Water; Embedded	Carbon Steel Stainless Steel	Loss of Material Cracking	Protective Coatings Program Primary Containment Leakage Rate Testing Program Inservice Inspection Program Suppression Pool Chemistry Control Component Cyclic or Transient Limit Program
Tubing* / C.2.2.9.2	Fission Product Barrier; Pressure Boundary	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections
Vent Pipe, Vent Header, Downcomers / C.2.6.2	Pressure Boundary Fission Product Barrier	Containment Atmosphere; High Humidity; Inside; Torus Water	Carbon Steel	Loss of Material Cracking	Protective Coatings Program Inservice Inspection Program Primary Containment Leakage Rate Testing Program Component Cyclic or Transient Limit Program Suppression Pool Chemistry Control
Bolting / C.2.2.10.1	Pressure Boundary	Inside Containment Atmosphere	Carbon Steel	Loss of Material Loss of Preload	Protective Coatings Program Torque Activities

* Piping and valve bodies include components from systems P51, P21, T23, G51, G11, D11, and C51. These are all included in function T23-01, Torus/Drywell.

Table 3.3.1-5 Aging Effects Requiring Management for Components Supporting Reactor Building [T29] Intended Functions and Their Component Functions

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Anchors and Bolts / C.2.6.3	Structural Support; Nonsafety Related Structural Support	Inside; Outside	Carbon Steel	Loss of Material	Protective Coatings Program Structural Monitoring Program
Blowout Panels / C.2.6.6	Structural Support; Fission Product Barrier	Inside	Aluminum	None	None Required
Miscellaneous Steel / C.2.6.3	Structural Support; HE/ME Shielding; Nonsafety Related Structural Support	Inside; Outside	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program
Miscellaneous Steel / C.2.6.3	Structural Support; HE/ME Shielding; Nonsafety Related Structural Support	Inside; Outside	Stainless Steel	None	None Required
Panel Joint Seals and Sealants / C.2.6.7	Shelter/Protection; Fission Product Barrier	Inside; Outside	Elastomers; Nonmetallic, Inorganic	Material Property Changes and Cracking Loss of Adhesion	Structural Monitoring Program ~~Protective Coatings Program~~
Reinforced Concrete C.2.6.1	Structural Support; Fire Barrier; Shelter/Protection; Flood Barrier; Fission Product Barrier; Radiation Shielding; Missile Barrier; HE/ME Shielding; Nonsafety Related Structural Support	Inside; Outside	Concrete Masonry Block Carbon Steel	Loss of Material Cracking	Structural Monitoring Program Protective Coatings Program
Structural Steel C.2.6.3	Structural Support; Missile Barrier; Nonsafety Related Structural Support	Inside; Outside; Submerged	Carbon Steel Galvanized Steel Stainless Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program Overhead Crane and Refueling Platform Inspections

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C.2.2.3 Non-Class 1 Components Suppression Pool Water Environment Description

Components within section C.2.2.3 are subject to an environment of suppression pool water under normal conditions. The suppression pool water environment is defined in section C.1.2.2.

C.2.2.3.1 Aging Management Review for Non-Class 1 Carbon Steel Components Within the Suppression Pool Environment

This commodity group consists of carbon steel commodities with an internal environment of suppression pool water or submerged within the suppression pool. The following component types are included within this evaluation:

- Piping
- Valve bodies
- Pump casings
- Thermowells
- Blind flange

Systems

~~B21 - Nuclear Boiler (2.3.1.2)~~

- E11 – Residual Heat Removal (2.3.3.2)
- E21 – Core Spray (2.3.3.3)
- E41 – High Pressure Coolant Injection (2.3.3.4)
- E51 – Reactor Core Isolation Cooling (2.3.3.5)
- T23 – Primary Containment (2.4.3)
- T48 – Primary Containment Purge and Inerting (2.3.3.7)

Aging Effects Requiring Management

- *Loss of material* (C.1.2.2.1) due to general corrosion, galvanic corrosion, crevice corrosion, pitting, microbiologically influenced corrosion (MIC), and erosion corrosion.
- *Cracking* (C.1.2.2.2) due to thermal fatigue.

A complete discussion of the applicable aging effect determinations may be found in section C.1 of the LRA or by using the above links.

Aging Management Programs

Aging management programs determined to manage aging effects requiring management are as follows:

- *Suppression Pool Chemistry Control* (A.1.7)
- *Protective Coatings Program* (A.2.3)

From: Baker, Ray D.
Sent: Friday, April 28, 2000 2:58 PM
To: 'William F. Burton (E-mail)'
Subject: Conforming Annotated Page Change

Butch,

As we discussed this week, both you and I had noted the need to provide the conforming three-column table page change in section 2 for the page change previously identified that clarified the fire protection component group line item as kaowool and hold down straps. Page 2.3-66 is provided in the attached file conforming to the change previously noted for page 3.2-52.

Please let me know if you have any questions regarding this item.

Ray Baker
8-992-7367

"Always do right. This will gratify some people and astonish the rest." -- Mark Twain

ATTACHMENT

annotated_page_markups.pdf (48...

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Component Groups Requiring an Aging Management Review

Table 2.3.4-16 Components Supporting Traveling Water Screens/ Trash Rack System [W33] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Material
Bolting	Pressure Boundary	Carbon Steel
Sight Glasses*	Pressure Boundary	Ceramic
Trash Racks	Debris Protection	Carbon Steel
Traveling Screen	Debris Protection	Carbon Steel Stainless Steel Copper Alloy*
Valve Bodies	Pressure Boundary	Carbon Steel

* No aging effects requiring management

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Component Groups Requiring an Aging Management Review

Table 2.3.4-18 Components Supporting Fire Protection System [X43] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Material
Bolting	Pressure Boundary	Carbon Steel
Fire Doors	Fire Barrier	Carbon Steel Galvanized Steel Copper Alloy Stainless Steel Aluminum Nonmetallic, Inorganic-Gypsum Fibers, nonasbestos synthetic Nonmetallic, organic
Fire Hydrants	Pressure Boundary	Cast Iron
Fittings	Pressure Boundary	Cast Iron
Fittings	Pressure Boundary	Copper Alloy Cast Iron
Fusible Material	Pressure Boundary	Nonferrous Metal
Kaowool and Hold-down Straps	Fire Barrier	Galvanized Steel, Insulation material
Nozzles	Flow Restriction	Aluminum Copper Alloy
Nozzles	Flow Restriction	Copper Alloy
Penetration Seals	Fire Barrier	Concrete Ceramics Carbon Steel Synthetic Fiber Elastomers
Pilot Valves	Pressure Boundary	Aluminum
Pipe Line Strainers	Pressure Boundary	Cast Iron
Piping	Pressure Boundary	Carbon Steel Aluminum Galvanized Steel Copper Alloy Cast Iron
Piping	Pressure Boundary	Carbon Steel Stainless Steel
Piping	Pressure Boundary	Carbon Steel Galvanized Steel
Pump Casings	Pressure Boundary	Cast Iron
Restricting Orifices	Pressure Boundary, Flow Restriction	Stainless Steel
Sprinkler Head Bulbs	Pressure Boundary	Ceramics

Component Groups Requiring an Aging Management Review

Table 2.4.3-1 Components Supporting Primary Containment [T23] Intended Functions and Their Component Functions

Structural Component	Component Functions	Material
Anchors and Bolts	Structural Support; Nonsafety Related Structural Support	Carbon Steel Galvanized Steel Stainless Steel
Blind Flange*	Fission Product Barrier	Carbon Steel
Bolting*	Fission Product Barrier	Carbon Steel
Containment Isolation Valves *	Fission Product Barrier	Carbon Steel
Containment Isolation Valves*	Fission Product Barrier	Stainless Steel
Containment Penetrations (Mechanical only)	Fission Product Barrier	Carbon Steel Stainless Steel
Miscellaneous Steel	Structural Support; Radiation Shielding; Pipe Whip Restraint; Nonsafety Related Structural Support	Carbon Steel Galvanized Steel
Piping*	Fission Product Barrier	Carbon Steel
Piping*	Fission Product Barrier	Stainless Steel
Reinforced Concrete	Structural Support; Shelter/Protection; Flood Barrier; Fission Product Barrier; Radiation Shielding; Missile Barrier; HE/ME Shielding	Concrete Carbon Steel
Steel Bellows (inside Vent Pipe)	Pressure Boundary; Fission Product Barrier	Carbon Steel Stainless Steel
Structural Steel	Structural Support; Shelter/Protection; Radiation Shielding; Missile Barrier; HE/ME Shielding; Pipe Whip Restraint; Nonsafety Related Structural Support; Pressure Boundary Fission Product Barrier; Exchange Heat	Carbon Steel Stainless Steel
Tubing*	Fission Product Barrier; Pressure Boundary	Stainless Steel
Unreinforced Concrete	Radiation Shielding	Unreinforced Concrete**
Vent Pipe, Vent Header, Downcomers	Fission Product Barrier; Pressure Boundary	Carbon Steel

* Piping and valves include components from systems P51, P21, T23, G51, G11, D11, and C51. These are all included in function T23-01, Torus/Drywell.
** No aging effects requiring management

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Table 3.2.1-2 Aging Effects Requiring Management for Components Supporting Nuclear Boiler System [B21] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Bolting / C.2.1.1.6 (Class 1)	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload	Torque Activities Inservice Inspection Program
Bolting / C.2.2.10.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program
Crack Growth Monitor / C.2.1.1.4 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections
Flow Nozzle / C.2.1.1.3 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Galvanic Susceptibility Inspections Component Cyclic or Transient Limit Program Flow Accelerated Corrosion Program Treated Water Systems Piping Inspections
Piping / C.2.2.1.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections ~~Flow Accelerated Corrosion Program~~
Piping / C.2.2.1.2 (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections

Table 3.2.1-2 Aging Effects Requiring Management for Components Supporting Nuclear Boiler System [B21] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Piping / C.2.2.2.2 (non-Class 1)	Pressure Boundary Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections
~~Piping / C.2.2.3.1 (non-Class 1)~~	~~Pressure Boundary~~ ~~Fission Product Barrier~~	~~Torus Water~~	~~Carbon Steel~~	~~Loss of Material~~ ~~Cracking~~	~~Suppression Pool Chemistry Control~~ ~~Torus Submerged Components Inspection Program~~
Piping / C.2.2.3.2 (non-Class 1)	Pressure Boundary Fission Product Barrier	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Torus Submerged Components Inspection Program
Piping / C.2.1.1.3 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Galvanic Susceptibility Inspections Component Cyclic or Transient Limit Program Flow Accelerated Corrosion Program Treated Water Systems Piping Inspections
Piping / C.2.1.1.4 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections
Piping / C.2.2.9.1 (Class 1)	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	~~Inservice Inspection Program~~ Gas Systems Component Inspections Passive Component Inspection Activities

Table 3.2.1-2 Aging Effects Requiring Management for Components Supporting Nuclear Boiler System [B21] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Restricting Orifice / C.2.1.1.4 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Component Cyclic or Transient Limit Program Inservice Inspection Program Treated Water Systems Piping Inspections
Thermowell/ C.2.2.9.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities
Thermowell / C.2.1.1.4 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections
Valve Bodies / C.2.2.1.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control ~~Flow Accelerated Corrosion Program~~ Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections
Valve Bodies / C.2.2.1.2 (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections
Valve Bodies / C.2.2.9.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Inservice Inspection Program Passive Component Inspection Activities

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Table 3.2.3-4 Aging Effects Requiring Management for Components Supporting High Pressure Coolant Injection System [E41] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Bolting / C.2.2.10.1	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program
Bolting / C.2.2.10.2	Pressure Boundary Fission Product Barrier	Inside	Stainless Steel	Loss of Preload	Torque Activities
Flexible Connector / C.2.2.9.2	Pressure Boundary Fission Product Barrier	~~Dry~~ Wetted Gas	Stainless Steel	Cracking Loss of Material	Gas Systems Component Inspections
Piping / C.2.2.1.1	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Galvanic Susceptibility Inspections Flow Accelerated Corrosion Program Treated Water Systems Piping Inspections
Piping / C.2.2.2.1	Pressure Boundary Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections
Piping / C.2.2.2.2	Pressure Boundary Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Program Treated Water Systems Piping Inspections
Piping / C.2.2.3.1	Pressure Boundary Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections Torus Submerged Components Inspection Program Protective Coatings Program
Piping / C.2.2.3.2	Pressure Boundary Fission Product Barrier	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Torus Submerged Components Inspection Program

Table 3.2.3-5 Aging Effects Requiring Management for Components Supporting Reactor Core Isolation Cooling System [E51] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/ Activity
Valve Bodies / C.2.2.9.2	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections ~~Passive Component Inspection Activities~~

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Table 3.2.3-7 Aging Effects Requiring Management for Components Supporting Primary Containment Purge and Inerting System [T48] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Bolting / C.2.2.10.1	Pressure Boundary	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program
Bolting / C.2.2.10.2	Pressure Boundary	Inside	Stainless Steel	Loss of Preload	Torque Activities
Flex Hose / C.2.2.9.1	Pressure Boundary	Air	Stainless Steel	Cracking	Gas Systems Component Inspections
Nitrogen Tank Jacket / C.2.2.9.1	Structural Support	Air	Carbon Steel	Cracking Loss of Material	Gas Systems Component Inspections Passive Component Inspection Activities
Piping / C.2.2.3.1	Pressure Boundary	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspections Torus Submerged Components Inspection Program Protective Coatings Program
~~Piping / C.2.2.3.1~~	~~Pressure Boundary~~	~~Torus Water~~	~~Carbon Steel~~	~~Loss of Material~~ ~~Cracking~~	~~Suppression Pool Chemistry Control~~ ~~Torus Submerged Components Inspection Program~~
Piping / C.2.2.3.2	Pressure Boundary	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections
Piping / C.2.2.8.2	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required
Piping / C.2.2.9.1	Pressure Boundary	Wetted Gas	Carbon Steel	Cracking Loss of Material	Gas Systems Component Inspections Passive Component Inspection Activities
Pressure Buildup Coil / C.2.2.8.2	Pressure Boundary Exchange Heat	Dried Gas	Stainless Steel	Cracking	None Required
Rupture Disc / C.2.2.8.2	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required
Storage Tank / C.2.2.8.2	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required

Table 3.2.4-2 Aging Effects Requiring Management for Components Supporting Refueling Platform Equipment Assembly [F15] Intended Functions and Their Component Functions

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Anchors and Bolts C.2.6.3	Structural support Nonsafety Related Structural Support	Inside	Carbon steel	Loss of material	Protective Coatings Program Overhead Crane and Refueling Platform Inspection Structural Monitoring Program
Miscellaneous Steel C.2.6.3	Structural support; Nonsafety Related Structural Support	Inside	Carbon steel	Loss of material	Protective Coatings Program Overhead Crane and Refueling Platform Inspection Structural Monitoring Program
Rivets	Structural Support	Inside	Aluminum	None	None Required
Structural Steel C.2.6.3	Structural support	Inside	Carbon steel	Loss of material	Protective Coatings Program Overhead Crane and Refueling Platform Inspection Structural Monitoring Program

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Table 3.2.4-7 Aging Effects Requiring Management for Components Supporting Plant Service Water System [P41] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Thermowell / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Cracking	PSW and RHRSW Inspection Program Plant Service Water and RHR Service Water Chemistry Control Program
Thermowell / C.2.2.6.2	Pressure Boundary	Raw Water	Stainless Steel	Loss of Material Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program
Valve Bodies / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program Galvanic Susceptibility Inspections
Valve Bodies / C.2.2.6.2	Pressure Boundary	Raw Water	Stainless Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program
Valve Bodies / C.2.2.6.3	Pressure Boundary	Raw Water	Copper Alloy	Loss of Material Cracking Flow Blocka	PSW and RHRSW Chemistry Control Program Structural Monitoring Program PSW and RHRSW Inspection Program
Venturi / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program Galvanic Susceptibility Inspections

Table 3.2.4-13 Aging Effects Requiring Management for Components Supporting Reactor Building Crane [T31] Intended Functions and Their Component Functions

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Structural Steel/ C.2.6.3	Structural Support	Inside	Carbon Steel	Loss of Material	Overhead Crane and Refueling Platform Inspection Protective Coatings Program Structural Monitoring Program

Table 3.2.4-16 Aging Effects Requiring Management for Components Supporting Traveling Water Screens / Trash Rack System [W33] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Trash Rack / C.2.6.3	Debris Protection	Submerged	Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program
Traveling Screen / C.2.6.3	Debris Protection	Submerged	Carbon Steel Stainless Steel	Loss of Material	Structural Monitoring Program
Traveling Screen / C.2.6.3	Debris Protection	Submerged	Copper Alloy	None	None Required
Valve Bodies / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program Plant Service Water and RHR Service Water Chemistry Control Program Galvanic Susceptibility Inspections
Bolting / C.2.2.10.1	Pressure Boundary	Outside	Carbon Steel	Loss of Material Loss of Preload	Torque Activities Protective Coatings Program

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Table 3.2.4-18 Aging Effects Requiring Management for Components Supporting Fire Protection System [X43] Intended Functions and Their Intended Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Boltings / C.2.2.10.1	Pressure Boundary	Inside Outside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program
Fire Doors / C.2.3.4.3	Fire Barrier	Inside	Carbon Steel	Loss of Material	Fire Protection Activities
Fire Doors / C.2.3.4.3	Fire Barrier	Inside	Galvanized Steel Copper Alloy Stainless Steel Aluminum Nonmettalic, Inorganic Gypsum Fibers, Nonasbestos Synthetic Nonmetallic, Organic	None	None Required
Fire Hydrants / C.2.3.1	Pressure Boundary	Raw Water	Cast Iron	Loss of Material Cracking Flow Blockage	Fire Protection Activities
Fittings / C.2.3.1	Pressure Boundary	Raw Water Air	Cast Iron	Loss of Material Cracking Flow Blockage	Fire Protection Activities
Fittings / C.2.3.3	Pressure Boundary	Air	Copper Alloy Cast Iron	Cracking Loss of Material	Fire Protection Activities
Fusible Material / C.2.3.1	Pressure Boundary	Inside	Nonferrous Metal	Loss of Material Cracking	Fire Protection Activities
Kaowool and Hold-Down Straps / ~~C.2.3.4.3~~C.2.3.4.2	Fire Barrier	Inside	Galvanized Steel Insulation Material	~~Cracking~~Loss of Material Change in Material Properties	Fire Protection Activities

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Table 3.3.1-3 Aging Effects Requiring Management for Components Supporting Primary Containment [T23] Intended Functions and Their Component Functions

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Anchors and Bolts / C.2.6.2	Structural Support; Nonsafety Related Structural Support	Containment Atmosphere; Embedded; Inside Torus Water	Carbon Steel Galvanized Steel Stainless Steel	Loss of Material	Protective Coatings Program Inservice Inspection Program Suppression Pool Chemistry Control
Blind Flange* / C.2.2.3.1	Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections
Containment Isolation Valves* / C.2.2.2.2	Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections
Containment Isolation Valves* / C.2.2.3.1	Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections
Containment Isolation Valves* / C.2.2.3.1	Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections
Containment Isolation Valves* / ~~C.2.2.6.2~~C.2.6.2	Fission Product Barrier	Raw Water	Carbon Steel	Loss of Material Cracking	Passive Component Inspection Activities
Containment Isolation Valves* / C.2.2.9.1	Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material	Gas Systems Component Inspections Passive Component Inspection Activities
Containment Isolation Valves* / C.2.2.9.2	Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspection
Containment Penetrations (Mechanical only) / C.2.6.2	Fission Product Barrier	Containment Atmosphere; Embedded; Inside	Carbon Steel Stainless Steel	Loss of Material	Protective Coatings Program Inservice Inspection Program Primary Containment Leakage Rate Testing Program

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Table 3.3.1-3 Aging Effects Requiring Management for Components Supporting Primary Containment [T23] Intended Functions and Their Component Functions (Continued)

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Structural Steel / C.2.6.2	Structural Support; Shelter/Protection; Pressure Boundary; Radiation Shielding; Nonsafety Related Structural Support; HE/ME Shielding; Missile Barrier; Pipe Whip Restraint; Fission Product Barrier; Exchange Heat	Containment Atmosphere; Inside; Torus Water; Embedded	Carbon Steel Stainless Steel	Loss of Material Cracking	Protective Coatings Program Primary Containment Leakage Rate Testing Program Inservice Inspection Program Suppression Pool Chemistry Control Component Cyclic or Transient Limit Program
Tubing* / C.2.2.9.2	Fission Product Barrier; Pressure Boundary	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections
Vent Pipe, Vent Header, Downcomers / C.2.6.2	Pressure Boundary Fission Product Barrier	Containment Atmosphere; High Humidity; Inside; Torus Water	Carbon Steel	Loss of Material Cracking	Protective Coatings Program Inservice Inspection Program Primary Containment Leakage Rate Testing Program Component Cyclic or Transient Limit Program Suppression Pool Chemistry Control
Bolting / C.2.2.10.1	Pressure Boundary	Inside Containment Atmosphere	Carbon Steel	Loss of Material Loss of Preload	Protective Coatings Program Torque Activities

* Piping and valve bodies include components from systems P51, P21, T23, G51, G11, D11, and C51. These are all included in function T23-01, Torus/Drywell.

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Table 3.3.1-5 Aging Effects Requiring Management for Components Supporting Reactor Building [T29] Intended Functions and Their Component Functions

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Anchors and Bolts / C.2.6.3	Structural Support; Nonsafety Related Structural Support	Inside; Outside	Carbon Steel	Loss of Material	Protective Coatings Program Structural Monitoring Program
Blowout Panels / C.2.6.6	Structural Support; Fission Product Barrier	Inside	Aluminum	None	None Required
Miscellaneous Steel / C.2.6.3	Structural Support; HE/ME Shielding; Nonsafety Related Structural Support	Inside; Outside	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program
Miscellaneous Steel / C.2.6.3	Structural Support; HE/ME Shielding; Nonsafety Related Structural Support	Inside; Outside	Stainless Steel	None	None Required
Panel Joint Seals and Sealants / C.2.6.7	Shelter/Protection; Fission Product Barrier	Inside; Outside	Elastomers; Nonmetallic, Inorganic	Material Property Changes and Cracking Loss of Adhesion	Structural Monitoring Program ~~Protective Coatings Program~~
Reinforced Concrete C.2.6.1	Structural Support; Fire Barrier; Shelter/Protection; Flood Barrier; Fission Product Barrier; Radiation Shielding; Missile Barrier; HE/ME Shielding; Nonsafety Related Structural Support	Inside; Outside	Concrete Masonry Block Carbon Steel	Loss of Material Cracking	Structural Monitoring Program Protective Coatings Program
Structural Steel C.2.6.3	Structural Support; Missile Barrier; Nonsafety Related Structural Support	Inside; Outside; Submerged	Carbon Steel Galvanized Steel Stainless Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program Overhead Crane and Refueling Platform Inspections

C.2.2.3 Non-Class 1 Components Suppression Pool Water Environment Description

Components within section C.2.2.3 are subject to an environment of suppression pool water under normal conditions. The suppression pool water environment is defined in section C.1.2.2.

C.2.2.3.1 Aging Management Review for Non-Class 1 Carbon Steel Components Within the Suppression Pool Environment

This commodity group consists of carbon steel commodities with an internal environment of suppression pool water or submerged within the suppression pool. The following component types are included within this evaluation:

- Piping
- Valve bodies
- Pump casings
- Thermowells
- Blind flange

Systems

~~B21 - Nuclear Boiler (2.3.1.2)~~

- E11 – Residual Heat Removal (2.3.3.2)
- E21 – Core Spray (2.3.3.3)
- E41 – High Pressure Coolant Injection (2.3.3.4)
- E51 – Reactor Core Isolation Cooling (2.3.3.5)
- T23 – Primary Containment (2.4.3)
- T48 – Primary Containment Purge and Inerting (2.3.3.7)

Aging Effects Requiring Management

- *Loss of material* (C.1.2.2.1) due to general corrosion, galvanic corrosion, crevice corrosion, pitting, microbiologically influenced corrosion (MIC), and erosion corrosion.
- *Cracking* (C.1.2.2.2) due to thermal fatigue.

A complete discussion of the applicable aging effect determinations may be found in section C.1 of the LRA or by using the above links.

Aging Management Programs

Aging management programs determined to manage aging effects requiring management are as follows:

- *Suppression Pool Chemistry Control* (A.1.7)
- *Protective Coatings Program* (A.2.3)

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From: Baker, Ray D.
Sent: Friday, May 05, 2000 10:54 AM
To: 'William F. Burton (E-mail)'
Subject: Follow Up to 5/4/00 Telecon

Butch,

In the telecon, I committed to provide you with the line items for a vertical slice of the application for the SRV discharge lines. The following references are provided that show how the information is developed in the application:

- Page 2.2-2 Table 2.2-1 Function B21-02 This function includes the SRV discharge lines.
- Pages 2.3-5, -6 A discussion of intended function B21-02 is provided.
- Page 2.3-7 Table 2.3.1-2 Line items 4 and 5 are for carbon steel and stainless steel non-class 1 piping. The SRV discharge lines are carbon steel except for the part that is submerged in the torus, which is stainless steel. This table provides the component functions that support intended function B21-02. The component functions are pressure boundary and fission product barrier. This table presents the scoping/screening results
- Pages 3.2-5 through 3.2-8 Table 3.2.1-2 This table is the corresponding table for presentation of aging management review results. The corresponding line items in this table are on page 3.2-6. The carbon steel SRV discharge line piping is the last item on the page. The stainless steel SRV discharge line piping is included in the third line item on the page. Please refer to the attached annotated pages file for the markups associated with this page. An additional markup has been provided for this page for the last line item on the page. The line item entry is for non-Class 1 rather than Class 1 piping with a wetted gas environment. The commodity reference correctly indicates this and links to the correct section of the application.
- The stainless steel line item indicates that the aging management review and demonstration can be found in section C.2.2.3.2 (pages C.2-66 through -71) and that the activities credited for managing the applicable aging effects are Suppression Pool Chemistry Control (A.1.7) and the Torus Submerged Components Inspection Program (A.3.7).
- The carbon steel line item indicates that the aging management review and demonstration can be found in section C.2.2.9.1 (pages C.2-114 through -117) and that the activities credited for managing the applicable aging effects are Gas Systems Components Inspection (A.3.3) and the Passive Component Inspection Activities (A.3.5).

Please let me know if we can be of further assistance regarding this question.

Ray Baker
8-992-7367

"Always do right. This will gratify some people and astonish the rest." -- Mark Twain

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Component Groups Requiring an Aging Management Review

Table 2.3.4-16 Components Supporting Traveling Water Screens/ Trash Rack System [W33] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Material
Bolting	Pressure Boundary	Carbon Steel
Sight Glasses*	Pressure Boundary	Ceramic
Trash Racks	Debris Protection	Carbon Steel
Traveling Screen	Debris Protection	Carbon Steel Stainless Steel Copper Alloy*
Valve Bodies	Pressure Boundary	Carbon Steel

* No aging effects requiring management

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Component Groups Requiring an Aging Management Review

Table 2.3.4-18 Components Supporting Fire Protection System [X43] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Material
Bolting	Pressure Boundary	Carbon Steel
Fire Doors	Fire Barrier	Carbon Steel Galvanized Steel Copper Alloy Stainless Steel Aluminum Nonmetallic, Inorganic-Gypsum Fibers, nonasbestos synthetic Nonmetallic, organic
Fire Hydrants	Pressure Boundary	Cast Iron
Fittings	Pressure Boundary	Cast Iron
Fittings	Pressure Boundary	Copper Alloy Cast Iron
Fusible Material	Pressure Boundary	Nonferrous Metal
Kaowool and Hold-down Straps	Fire Barrier	Galvanized Steel, Insulation material
Nozzles	Flow Restriction	Aluminum Copper Alloy
Nozzles	Flow Restriction	Copper Alloy
Penetration Seals	Fire Barrier	Concrete Ceramics Carbon Steel Synthetic Fiber Elastomers
Pilot Valves	Pressure Boundary	Aluminum
Pipe Line Strainers	Pressure Boundary	Cast Iron
Piping	Pressure Boundary	Carbon Steel Aluminum Galvanized Steel Copper Alloy Cast Iron
Piping	Pressure Boundary	Carbon Steel Stainless Steel
Piping	Pressure Boundary	Carbon Steel Galvanized Steel
Pump Casings	Pressure Boundary	Cast Iron
Restricting Orifices	Pressure Boundary, Flow Restriction	Stainless Steel
Sprinkler Head Bulbs	Pressure Boundary	Ceramics

Component Groups Requiring an Aging Management Review

Table 2.4.3-1 Components Supporting Primary Containment [T23] Intended Functions and Their Component Functions

Structural Component	Component Functions	Material
Anchors and Bolts	Structural Support; Nonsafety Related Structural Support	Carbon Steel Galvanized Steel Stainless Steel
Blind Flange*	Fission Product Barrier	Carbon Steel
Bolting*	Fission Product Barrier	Carbon Steel
Containment Isolation Valves *	Fission Product Barrier	Carbon Steel
Containment Isolation Valves*	Fission Product Barrier	Stainless Steel
Containment Penetrations (Mechanical only)	Fission Product Barrier	Carbon Steel Stainless Steel
Miscellaneous Steel	Structural Support; Radiation Shielding; Pipe Whip Restraint; Nonsafety Related Structural Support	Carbon Steel Galvanized Steel
Piping*	Fission Product Barrier	Carbon Steel
Piping*	Fission Product Barrier	Stainless Steel
Reinforced Concrete	Structural Support; Shelter/Protection; Flood Barrier; Fission Product Barrier; Radiation Shielding; Missile Barrier; HE/ME Shielding	Concrete Carbon Steel
Steel Bellows (inside Vent Pipe)	Pressure Boundary; Fission Product Barrier	Carbon Steel Stainless Steel
Structural Steel	Structural Support; Shelter/Protection; Radiation Shielding; Missile Barrier; HE/ME Shielding; Pipe Whip Restraint; Nonsafety Related Structural Support; Pressure Boundary Fission Product Barrier; Exchange Heat	Carbon Steel Stainless Steel
Tubing*	Fission Product Barrier; Pressure Boundary	Stainless Steel
Unreinforced Concrete	Radiation Shielding	Unreinforced Concrete**
Vent Pipe, Vent Header, Downcomers	Fission Product Barrier; Pressure Boundary	Carbon Steel

* Piping and valves include components from systems P51, P21, T23, G51, G11, D11, and C51. These are all included in function T23-01, Torus/Drywell.
** No aging effects requiring management

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Table 3.2.1-2 Aging Effects Requiring Management for Components Supporting Nuclear Boiler System [B21] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Bolting / C.2.1.1.6 (Class 1)	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload	Torque Activities Inservice Inspection Program
Bolting / C.2.2.10.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program
Crack Growth Monitor / C.2.1.1.4 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections
Flow Nozzle / C.2.1.1.3 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Galvanic Susceptibility Inspections Component Cyclic or Transient Limit Program Flow Accelerated Corrosion Program Treated Water Systems Piping Inspections
Piping / C.2.2.1.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections ~~Flow Accelerated Corrosion Program~~
Piping / C.2.2.1.2 (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections

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Table 3.2.1-2 Aging Effects Requiring Management for Components Supporting Nuclear Boiler System [B21] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Piping / C.2.2.2.2 (non-Class 1)	Pressure Boundary Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections
~~Piping / C.2.2.3.1 (non-Class 1)~~	~~Pressure Boundary~~ ~~Fission Product Barrier~~	~~Torus Water~~	~~Carbon Steel~~	~~Loss of Material~~ ~~Cracking~~	~~Suppression Pool Chemistry Control~~ ~~Torus Submerged Components Inspection Program~~
Piping / C.2.2.3.2 (non-Class 1)	Pressure Boundary Fission Product Barrier	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Torus Submerged Components Inspection Program
Piping / C.2.1.1.3 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Galvanic Susceptibility Inspections Component Cyclic or Transient Limit Program Flow Accelerated Corrosion Program Treated Water Systems Piping Inspections
Piping / C.2.1.1.4 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections
Piping / C.2.2.9.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	~~Inservice Inspection Program~~ Gas Systems Component Inspections Passive Component Inspection Activities

Table 3.2.1-2 Aging Effects Requiring Management for Components Supporting Nuclear Boiler System [B21] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Restricting Orifice / C.2.1.1.4 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Component Cyclic or Transient Limit Program Inservice Inspection Program Treated Water Systems Piping Inspections
Thermowell/ C.2.2.9.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities
Thermowell / C.2.1.1.4 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections
Valve Bodies / C.2.2.1.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control ~~Flow Accelerated Corrosion Program~~ Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections
Valve Bodies / C.2.2.1.2 (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections
Valve Bodies / C.2.2.9.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Inservice Inspection Program Passive Component Inspection Activities

Table 3.2.3-4 Aging Effects Requiring Management for Components Supporting High Pressure Coolant Injection System [E41] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Bolting / C.2.2.10.1	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program
Bolting / C.2.2.10.2	Pressure Boundary Fission Product Barrier	Inside	Stainless Steel	Loss of Preload	Torque Activities
Flexible Connector / C.2.2.9.2	Pressure Boundary Fission Product Barrier	~~Dry~~ Wetted Gas	Stainless Steel	Cracking Loss of Material	Gas Systems Component Inspections
Piping / C.2.2.1.1	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Galvanic Susceptibility Inspections Flow Accelerated Corrosion Program Treated Water Systems Piping Inspections
Piping / C.2.2.2.1	Pressure Boundary Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections
Piping / C.2.2.2.2	Pressure Boundary Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Program Treated Water Systems Piping Inspections
Piping / C.2.2.3.1	Pressure Boundary Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections Torus Submerged Components Inspection Program Protective Coatings Program
Piping / C.2.2.3.2	Pressure Boundary Fission Product Barrier	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Torus Submerged Components Inspection Program

A-47039   Attachment C
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Table 3.2.3-5 Aging Effects Requiring Management for Components Supporting Reactor Core Isolation Cooling System [E51] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/ Activity
Valve Bodies / C.2.2.9.2	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections ~~Passive Component Inspection Activities~~

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Table 3.2.3-7 Aging Effects Requiring Management for Components Supporting Primary Containment Purge and Inerting System [T48] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Bolting / C.2.2.10.1	Pressure Boundary	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program
Bolting / C.2.2.10.2	Pressure Boundary	Inside	Stainless Steel	Loss of Preload	Torque Activities
Flex Hose / C.2.2.9.1	Pressure Boundary	Air	Stainless Steel	Cracking	Gas Systems Component Inspections
Nitrogen Tank Jacket / C.2.2.9.1	Structural Support	Air	Carbon Steel	Cracking Loss of Material	Gas Systems Component Inspections Passive Component Inspection Activities
Piping / C.2.2.3.1	Pressure Boundary	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspections Torus Submerged Components Inspection Program Protective Coatings Program
~~Piping / C.2.2.3.1~~	~~Pressure Boundary~~	~~Torus Water~~	~~Carbon Steel~~	~~Loss of Material~~ ~~Cracking~~	~~Suppression Pool Chemistry Control~~ ~~Torus Submerged Components Inspection Program~~
Piping / C.2.2.3.2	Pressure Boundary	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections
Piping / C.2.2.8.2	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required
Piping / C.2.2.9.1	Pressure Boundary	Wetted Gas	Carbon Steel	Cracking Loss of Material	Gas Systems Component Inspections Passive Component Inspection Activities
Pressure Buildup Coil / C.2.2.8.2	Pressure Boundary Exchange Heat	Dried Gas	Stainless Steel	Cracking	None Required
Rupture Disc / C.2.2.8.2	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required
Storage Tank / C.2.2.8.2	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required

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Table 3.2.4-2 Aging Effects Requiring Management for Components Supporting Refueling Platform Equipment Assembly [F15] Intended Functions and Their Component Functions

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Anchors and Bolts C.2.6.3	Structural support Nonsafety Related Structural Support	Inside	Carbon steel	Loss of material	Protective Coatings Program Overhead Crane and Refueling Platform Inspection Structural Monitoring Program
Miscellaneous Steel C.2.6.3	Structural support; Nonsafety Related Structural Support	Inside	Carbon steel	Loss of material	Protective Coatings Program Overhead Crane and Refueling Platform Inspection Structural Monitoring Program
Rivets	Structural Support	Inside	Aluminum	None	None Required
Structural Steel C.2.6.3	Structural support	Inside	Carbon steel	Loss of material	Protective Coatings Program Overhead Crane and Refueling Platform Inspection Structural Monitoring Program

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Table 3.2.4-7 Aging Effects Requiring Management for Components Supporting Plant Service Water System [P41] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Thermowell / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Cracking	PSW and RHRSW Inspection Program Plant Service Water and RHR Service Water Chemistry Control Program
Thermowell / C.2.2.6.2	Pressure Boundary	Raw Water	Stainless Steel	Loss of Material Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program
Valve Bodies / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program Galvanic Susceptibility Inspections
Valve Bodies / C.2.2.6.2	Pressure Boundary	Raw Water	Stainless Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program
Valve Bodies / C.2.2.6.3	Pressure Boundary	Raw Water	Copper Alloy	Loss of Material Cracking Flow Blockage	PSW and RHRSW Chemistry Control Program Structural Monitoring Program PSW and RHRSW Inspection Program
Venturi / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program Galvanic Susceptibility Inspections

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Table 3.2.4-13 Aging Effects Requiring Management for Components Supporting Reactor Building Crane [T31] Intended Functions and Their Component Functions

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Structural Steel/ C.2.6.3	Structural Support	Inside	Carbon Steel	Loss of Material	Overhead Crane and Refueling Platform Inspection Protective Coatings Program Structural Monitoring Program

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Table 3.2.4-16 Aging Effects Requiring Management for Components Supporting Traveling Water Screens / Trash Rack System [W33] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Trash Rack / C.2.6.3	Debris Protection	Submerged	Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program
Traveling Screen / C.2.6.3	Debris Protection	Submerged	Carbon Steel Stainless Steel	Loss of Material	Structural Monitoring Program
Traveling Screen / C.2.6.3	Debris Protection	Submerged	Copper Alloy	None	None Required
Valve Bodies / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program Plant Service Water and RHR Service Water Chemistry Control Program Galvanic Susceptibility Inspections
Bolting / C.2.2.10.1	Pressure Boundary	Outside	Carbon Steel	Loss of Material Loss of Preload	Torque Activities Protective Coatings Program

Table 3.2.4-18 Aging Effects Requiring Management for Components Supporting Fire Protection System [X43] Intended Functions and Their Intended Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Boltings / C.2.2.10.1	Pressure Boundary	Inside Outside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program
Fire Doors / C.2.3.4.3	Fire Barrier	Inside	Carbon Steel	Loss of Material	Fire Protection Activities
Fire Doors / C.2.3.4.3	Fire Barrier	Inside	Galvanized Steel Copper Alloy Stainless Steel Aluminum Nonmettalic, Inorganic Gypsum Fibers, Nonasbestos Synthetic Nonmetallic, Organic	None	None Required
Fire Hydrants / C.2.3.1	Pressure Boundary	Raw Water	Cast Iron	Loss of Material Cracking Flow Blockage	Fire Protection Activities
Fittings / C.2.3.1	Pressure Boundary	Raw Water Air	Cast Iron	Loss of Material Cracking Flow Blockage	Fire Protection Activities
Fittings / C.2.3.3	Pressure Boundary	Air	Copper Alloy Cast Iron	Cracking Loss of Material	Fire Protection Activities
Fusible Material / C.2.3.1	Pressure Boundary	Inside	Nonferrous Metal	Loss of Material Cracking	Fire Protection Activities
Kaowool and Hold-Down Straps / ~~C.2.3.4.3~~C.2.3.4.2	Fire Barrier	Inside	Galvanized Steel Insulation Material	~~Cracking~~Loss of Material Change in Material Properties	Fire Protection Activities

Table 3.3.1-3 Aging Effects Requiring Management for Components Supporting Primary Containment [T23] Intended Functions and Their Component Functions

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Anchors and Bolts / C.2.6.2	Structural Support; Nonsafety Related Structural Support	Containment Atmosphere; Embedded; Inside Torus Water	Carbon Steel Galvanized Steel Stainless Steel	Loss of Material	Protective Coatings Program Inservice Inspection Program Suppression Pool Chemistry Control
Blind Flange* / C.2.2.3.1	Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections
Containment Isolation Valves* / C.2.2.2.2	Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections
Containment Isolation Valves* / C.2.2.3.1	Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections
Containment Isolation Valves* / C.2.2.3.1	Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections
Containment Isolation Valves* / ~~C.2.2.6.2~~C.2.6.2	Fission Product Barrier	Raw Water	Carbon Steel	Loss of Material Cracking	Passive Component Inspection Activities
Containment Isolation Valves* / C.2.2.9.1	Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material	Gas Systems Component Inspections Passive Component Inspection Activities
Containment Isolation Valves* / C.2.2.9.2	Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspection
Containment Penetrations (Mechanical only) / C.2.6.2	Fission Product Barrier	Containment Atmosphere; Embedded; Inside	Carbon Steel Stainless Steel	Loss of Material	Protective Coatings Program Inservice Inspection Program Primary Containment Leakage Rate Testing Program

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Table 3.3.1-3 Aging Effects Requiring Management for Components Supporting Primary Containment [T23] Intended Functions and Their Component Functions (Continued)

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Structural Steel / C.2.6.2	Structural Support; Shelter/Protection; Pressure Boundary; Radiation Shielding; Nonsafety Related Structural Support; HE/ME Shielding; Missile Barrier; Pipe Whip Restraint; Fission Product Barrier; Exchange Heat	Containment Atmosphere; Inside; Torus Water; Embedded	Carbon Steel Stainless Steel	Loss of Material Cracking	Protective Coatings Program Primary Containment Leakage Rate Testing Program Inservice Inspection Program Suppression Pool Chemistry Control Component Cyclic or Transient Limit Program
Tubing* / C.2.2.9.2	Fission Product Barrier; Pressure Boundary	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections
Vent Pipe, Vent Header, Downcomers / C.2.6.2	Pressure Boundary Fission Product Barrier	Containment Atmosphere; High Humidity; Inside; Torus Water	Carbon Steel	Loss of Material Cracking	Protective Coatings Program Inservice Inspection Program Primary Containment Leakage Rate Testing Program Component Cyclic or Transient Limit Program Suppression Pool Chemistry Control
Bolting / C.2.2.10.1	Pressure Boundary	Inside Containment Atmosphere	Carbon Steel	Loss of Material Loss of Preload	Protective Coatings Program Torque Activities

* Piping and valve bodies include components from systems P51, P21, T23, G51, G11, D11, and C51. These are all included in function T23-01, Torus/Drywell.

Table 3.3.1-5 Aging Effects Requiring Management for Components Supporting Reactor Building [T29] Intended Functions and Their Component Functions

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Anchors and Bolts / C.2.6.3	Structural Support; Nonsafety Related Structural Support	Inside; Outside	Carbon Steel	Loss of Material	Protective Coatings Program Structural Monitoring Program
Blowout Panels / C.2.6.6	Structural Support; Fission Product Barrier	Inside	Aluminum	None	None Required
Miscellaneous Steel / C.2.6.3	Structural Support; HE/ME Shielding; Nonsafety Related Structural Support	Inside; Outside	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program
Miscellaneous Steel / C.2.6.3	Structural Support; HE/ME Shielding; Nonsafety Related Structural Support	Inside; Outside	Stainless Steel	None	None Required
Panel Joint Seals and Sealants / C.2.6.7	Shelter/Protection; Fission Product Barrier	Inside; Outside	Elastomers; Nonmetallic, Inorganic	Material Property Changes and Cracking Loss of Adhesion	Structural Monitoring Program ~~Protective Coatings Program~~
Reinforced Concrete C.2.6.1	Structural Support; Fire Barrier; Shelter/Protection; Flood Barrier; Fission Product Barrier; Radiation Shielding; Missile Barrier; HE/ME Shielding; Nonsafety Related Structural Support	Inside; Outside	Concrete Masonry Block Carbon Steel	Loss of Material Cracking	Structural Monitoring Program Protective Coatings Program
Structural Steel C.2.6.3	Structural Support; Missile Barrier; Nonsafety Related Structural Support	Inside; Outside; Submerged	Carbon Steel Galvanized Steel Stainless Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program Overhead Crane and Refueling Platform Inspections

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C.2.2.3 Non-Class 1 Components Suppression Pool Water Environment Description

Components within section C.2.2.3 are subject to an environment of suppression pool water under normal conditions. The suppression pool water environment is defined in section C.1.2.2.

C.2.2.3.1 Aging Management Review for Non-Class 1 Carbon Steel Components Within the Suppression Pool Environment

This commodity group consists of carbon steel commodities with an internal environment of suppression pool water or submerged within the suppression pool. The following component types are included within this evaluation:

- Piping
- Valve bodies
- Pump casings
- Thermowells
- Blind flange

Systems

~~B21 - Nuclear Boiler (2.3.1.2)~~

- E11 – Residual Heat Removal (2.3.3.2)
- E21 – Core Spray (2.3.3.3)
- E41 – High Pressure Coolant Injection (2.3.3.4)
- E51 – Reactor Core Isolation Cooling (2.3.3.5)
- T23 – Primary Containment (2.4.3)
- T48 – Primary Containment Purge and Inerting (2.3.3.7)

Aging Effects Requiring Management

- *Loss of material* (C.1.2.2.1) due to general corrosion, galvanic corrosion, crevice corrosion, pitting, microbiologically influenced corrosion (MIC), and erosion corrosion.
- *Cracking* (C.1.2.2.2) due to thermal fatigue.

A complete discussion of the applicable aging effect determinations may be found in section C.1 of the LRA or by using the above links.

Aging Management Programs

Aging management programs determined to manage aging effects requiring management are as follows:

- *Suppression Pool Chemistry Control* (A.1.7)
- *Protective Coatings Program* (A.2.3)

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From: Baker, Ray D.
Sent: Tuesday, May 23, 2000 8:43 AM
To: 'William F. Burton (E-mail)'
Subject: Oglethorpe Power Corporation Board Changes

Butch,

In response to your follow-up request regarding the recent Oglethorpe Power Corporation board changes, I am providing as attachment to this memo, a red-line/strikeout markup of the applicable pabes in the application. Also provided are the remaining pages to the end of the section since page breaks were affected by the markup. This markup is consistent with the information provided to Southern Nuclear by OPC.

As previously noted, the principal OPC officers and board members listed are U.S. citizens.

Please let me know if you have any additional questions regarding this item.

Ray Baker
8-992-7367

"Always do right. This will gratify some people and astonish the rest." -- Mark Twain

ATTAHCMENT

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Patrick Bowie, Board Member	P. O. Box 430 LaGrange, Georgia 30241
The Honorable Ansley L. Meaders, Board Member	205 Lawrence Street Marietta, Georgia 30061
Roland C. Stubbs Jr., Board Member	113 Sylvan Terrace Sylvania, Georgia 30467
The Honorable Gerald Thompson Board Member	P. O. Box 425 Fitzgerald, Georgia 31750
Kerry Waldron, Board Member	P. O. Box 672 Thomaston, Georgia 30286-0009
Joel T. Wood Board Member	P. O. Box 487 West Point, Georgia 31833

Principal Officers

Robert P. Johnston, President	14370 Riveredge Pkwy. NW Atlanta, Georgia 30328
Mary Jackson, Vice President and Chief Financial Officer	14370 Riveredge Pkwy. NW Atlanta, Georgia 30328
James Fuller, Treasurer	14370 Riveredge Pkwy. NW Atlanta, Georgia 30328

MEAG is neither owned, controlled, nor dominated by an alien, foreign corporation, or foreign government.

OGLETHORPE POWER CORPORATION

Oglethorpe Power Corporation (an Electric Membership Corporation) operating on a not-for-profit basis, was organized under the Georgia Electric Membership Corporation Act (Official Code of Georgia Annotated, Title 46, Chapter 3, Article 4) and other applicable laws of the State of Georgia.

The names and addresses of Oglethorpe's principal officers and the members of its governing body, all of whom are citizens of the United States, are as follows:

Board of Directors

J. Calvin Earwood, Chairman	2100 East Exchange Place Tucker, GA 30085-1349

~~Benny W. Denham~~Sam Rabun, Vice Chairman Central Regional Director	2100 East Exchange Place Tucker, GA 30085-1349
Mac F. Oglesby, Treasurer	2100 East Exchange Place Tucker, GA 30085-1349
Larry N. Chadwick, NW Regional Director	2100 East Exchange Place Tucker, GA 30085-1349
Sammy Jenkins, SE Regional Director	2100 East Exchange Place Tucker, GA 30085-1349
~~Sam Rabun~~Benny W. Denham, ~~Central~~ SW Regional Director	2100 East Exchange Place Tucker, GA 30085-1349
Ashley C. Brown, Outside Director	2100 East Exchange Place Tucker, GA 30085-1349
~~Newton A. Campbell,~~ ~~Outside Director~~	~~2100 East Exchange Place~~ ~~Tucker, GA 30085-1349~~
Wm. Ronald Duffy, Outside Director	2100 East Exchange Place Tucker, GA 30085-1349
John S. Ranson, Outside Director	2100 East Exchange Place Tucker, GA 30085-1349
Jeffrey D. Tranen Outside Director	2100 East Exchange Place Tucker, GA 30085-1349

Principal Officers

Thomas A. Smith, President and Chief Executive Officer	2100 East Exchange Place Tucker, GA 30085-1349
Michael W. Price, Chief Operating Officer	2100 East Exchange Place Tucker, GA 30085-1349
W. Clayton Robbins, Senior Vice President, Finance and Administration	2100 East Exchange Place Tucker, GA 30085-1349
Clarence D. Mitchell, Senior Vice President, Operations and Projects	2100 East Exchange Place Tucker, GA 30085-1349
Betsy Higgins, Vice President, Assistant to the CEO	2100 East Exchange Place Tucker, GA 30085-1349

Dale R. Murphy, Vice President, Planning and Administration	2100 East Exchange Place Tucker, GA 30085-1349
Robert D. Steele, Vice President, External Affairs	2100 East Exchange Place Tucker, GA 30085-1349
Glenn Loomer Vice President, Contract~~s~~ Administration and Analysis	2100 East Exchange Place Tucker, GA 30085-1349
Willie Collins, Controller and Chief Risk Officer	2100 East Exchange Place Tucker, GA 30085-1349
James E. Kofron, Corporate Treasurer	2100 East Exchange Place Tucker, GA 30085-1349
Patricia N. Nash, ~~Corporate~~ Secretary	2100 East Exchange Place Tucker, GA 30085-1349

Oglethorpe is neither owned, controlled, nor dominated by an alien, foreign corporation, or foreign government.

CITY OF DALTON

The names and addresses of Dalton’s governing body (councilmen) and principal officers (mayor and city administrator), all of whom are citizens of the United States, are as follows:

Councilmen

Ray Elrod, Mayor	1508 Rio Vista Drive Dalton, GA 30720
Bobby Joe Grant	Paramount Printing P. O. Box 4569 Dalton, GA 30719-4569
Charles Whitener	123 Lisa Lane Dalton, GA 30720
Terry Christie	607 Murray Hill Drive Dalton, GA 30720
Michael Robinson	2006 West Brookhaven Circle Dalton, GA 30720

Officers

Ray Elrod, Mayor	1508 Rio Vista Drive Dalton, GA 30720
Butch Sanders, City Administrator	City Hall P. O. Box 1205 Dalton, GA 30722-1205
Faye Martin, City Clerk	City Hall P. O. Box 1205 Dalton, GA 30722-1205

Dalton is neither owned, controlled, nor dominated by an alien, foreign corporation, or foreign government.

The names and addresses of Dalton Utilities' governing body (Commissioners) and principal officers (chairman, president/chief executive officer, and secretary), all of whom are citizens of the United States, are as follows:

Commissioners

Justin Robinson Chairman	2203 Druid Lane Dalton, GA 30720
Norman D. Burkett Vice Chairman	2209 Rocky Face Circle Dalton, GA 30720
Todd Reigel Secretary	c/o Paradigm Printing, Inc. 429 Virgil Drive Dalton, GA 30720
George Mitchell	c/o Dalton Paving & Construction Company 530 North Elm Street Dalton, GA 30720
Jim Bethel	c/o J & J Industries, Inc. 818 J & J Drive Dalton, GA 30720

Officers

Justin Robinson Chairman	2203 Druid Lane Dalton, GA 30720
Don Cope President/Chief Executive Officer	1200 V. D. Parrott, Jr. Parkway Dalton, GA 30720
Todd Reigel Secretary	c/o Paradigm Printing, Inc. 429 Virgil Drive Dalton, GA 30720

1.1.5 CLASS OF LICENSE, USE OF THE FACILITY, AND PERIOD OF TIME FOR WHICH THE LICENSE IS SOUGHT

SNC requests a Class 104 operating license for Plant Hatch Unit 1 and a Class 103 operating license for Unit 2 (License Nos. DPR-57 and NPF-5, respectively) for a period 20 years beyond the expiration of the current licenses, midnight, August 6, 2014 for Unit 1 and midnight, June 13, 2018 for Unit 2.

Because the current licensing basis is carried forward with the possible exception of some aging issues, Southern Nuclear expects the form and content of the licenses to be generally the same as they now exist. Southern Nuclear, thus, also requires similar extensions of specific licenses under Parts 30, 40, and 70 that are contained in the current operating licenses.

1.1.6 EARLIEST AND LATEST DATES FOR ALTERATIONS, IF PROPOSED

No physical plant alterations or modifications have been identified as necessary in order to implement the provisions of this application.

1.1.7 RESTRICTED DATA

With regard to the requirements of 10 CFR 54.17(f), this application does not contain any “Restricted Data,” as that term is defined in the Atomic Energy Act of 1954, as amended, or other defense information, and it is not expected that any such information will become involved in these licensed activities.

In accordance with the requirements of 10 CFR 54.17(g), the applicants will not permit any individual to have access to, or any facility to possess restricted data or classified national security information until the individual and/or facility has been approved for such access under the provisions of 10 CFR Parts 25 and/or 95.

1.1.8 REGULATORY AGENCIES

The direct costs incurred by SNC in connection with HNP are billed directly to GPC. Expenses which are not direct charges to specific plants are allocated to GPC and others for whom the expenses are incurred, as appropriate. GPC recovers a portion of HNP direct and allocated costs from the other co-owners in relation to their respective ownership interests in HNP, and the remainder through rates. The rates charged and services provided by GPC are subject to the jurisdiction of the Georgia Public Service Commission and the Federal Energy Regulatory Commission.

Georgia Public Service Commission
244 Washington St. S.W.
Atlanta, Georgia 30334

Federal Energy Regulatory Commission
888 First St. N.E.
Washington, DC 20426

1.1.9 LOCAL NEWS PUBLICATIONS

News publications in circulation near Plant Hatch which are considered appropriate to give reasonable notice of the application are as follows:

The Baxley News-Banner
P.O. Box 409
Baxley, Georgia 31513
912-367-2468
Fax-912-367-0277

Vidalia Advance-Progress
P.O. Box 669
Vidalia, GA 30474
912-537-4899
Fax-912-537-4899

The Tattnall Journal
P.O. Box 278
Reidsville, GA 30453
912-557-6761
Fax-912-557-4132

The Jeff Davis Ledger
P.O. Box 338
Hazlehurst, GA 31539
912-375-4225
Fax-912-375-3704

The Macon Telegraph
P.O. Box 4167
Macon, GA 31208
912-744-4200
Fax-912-744-4385

Savannah Morning News
P.O. Box 1088
Savannah, GA 31402

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912-236-9511
Fax-912-234-6522

1.1.10 CONFORMING CHANGES TO STANDARD INDEMNITY AGREEMENT

10 CFR 54.19(b) requires that "each application must include conforming changes to the standard indemnity agreement, 10 CFR 140.92, Appendix B, to account for the expiration term of the proposed renewed license." Article VII of the original Indemnity Agreement, which was issued on August 2, 1973, along with the HNP Materials License, provides that the Agreement will terminate at the expiration of the license identified in Item 3 of the Attachment (SNM-1378). Since August 2, 1973, the Indemnity Agreement has been amended from time to time. Two of these amendments added license numbers DPR-57 and NPF-5 to Item 3 of the Attachment. As a consequence of these amendments, the existing Indemnity Agreement is presently due to terminate at midnight, June 13, 2018, as the last of these two licenses expires. SNC requests that conforming changes be made to Item 3 of the Attachment to the Indemnity Agreement (and any other provision of the Attachment or Indemnity Agreement) to make clear that the Indemnity Agreement is extended until the expiration date of the renewed HNP operating licenses issued by the Commission in response to this application.

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From: Baker, Ray D.
Sent: Tuesday, June 20, 2000 3:56 PM
To: 'William F. Burton (E-mail)'
Subject: Hatch Application Review Tool - Cracking Mechanisms Matrix by Commodity Group

Butch,

In previous discussions, the NRC staff had expressed interest in a matrix that would map the cracking aging mechanisms discussed in the various C.2 commodity groups to the six-column table entries. The attached matrix provides a concise way for the reviewer to see which cracking mechanisms are considered applicable when examining the six-column tables. The commodity group number is in the same box as the component name. Find the commodity group number in the matrix and see which mechanisms are considered applicable. The corresponding discussion in section C.2 of the application addresses the management of each of the aging mechanisms specified.

During the preparation of this tool we identified areas where annotations/clarifications of the application might prove useful. These pages have been incorporated into an update of the annotated page markups file previously provided. This revised file has been renamed to include the date in order to provide version control of the annotations. Note that none of the pages provided previously have been further annotated by the clarifications provided with the cracking mechanism matrix tool. The only change to the previous annotated page markups file is to add the clarifications pages noted below. The clarifications can be grouped as follows:

1. Editorial/typos - pages 2.3-15, 3.2-14, -15, and C.2-101
2. Clarifications of applicability of an aging effect to a specific component - pages 3.2-14, -38, -39, -56, C.2-1, -9, -87, -92, -101, -105, and -108

Please let me know if you have any questions or comments regarding the matrix or the updated annotated pages file.

Ray Baker
8-992-7367

"Always do right. This will gratify some people and astonish the rest." -- Mark Twain

ATTACHMENTS

Cracking by Commodity Matrix.p... annotated_page_markups_6_20.pd...

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Cracking Mechanisms Matrix by Commodity Group

Commodity Group	Fatigue Cracking	SCC Cracking	IGA Cracking	Other Cracking
C.2.1.1.1	X	X		
C.2.1.1.2	X	X		
C.2.1.1.3	X			
C.2.1.1.4	X	X	X	
C.2.1.1.5	X	X	X	
C.2.1.1.6				
C.2.2.1.1	X			
C.2.2.1.2	X	X	X	
C.2.2.2.1	X			
C.2.2.2.2	X			
C.2.2.2.3				
C.2.2.3.1	X			
C.2.2.3.2	X	X	X	
C.2.2.4.1	X			
C.2.2.4.2	X			
C.2.2.5.1	X			
C.2.2.5.2	X			
C.2.2.5.3	X			
C.2.2.6.1	X			
C.2.2.6.2	X			
C.2.2.6.3	X			
C.2.2.6.4	X			
C.2.2.7.1	X			
C.2.2.7.2	X			
C.2.2.8.1	X			
C.2.2.8.2	X			
C.2.2.8.3	X			
C.2.2.9.1	X			
C.2.2.9.2	X	X	X	
C.2.2.9.3	X			
C.2.2.9.4	X			
C.2.2.10.1				
C.2.2.10.2				
C.2.2.11.1		X	X	X
C.2.3.1	X	X	X	
C.2.3.2	X	X	X	
C.2.3.3	X	X	X	
C.2.3.4.1	X			
C.2.3.4.2				X
C.2.3.4.3				
C.2.4.1				
C.2.4.2				
C.2.4.3				
C.2.4.4.1	X			X
C.2.4.4.2	X			

Cracking Mechanisms Matrix by Commodity Group

Commodity Group	Fatigue Cracking	SCC Cracking	IGA Cracking	Other Cracking
C.2.5.1				
C.2.5.2				
C.2.5.3				
C.2.5.4				
C.2.5.5				
C.2.6.1				X
C.2.6.2	X			
C.2.6.3				
C.2.6.4				
C.2.6.5				
C.2.6.6				
C.2.6.7				X
C.2.6.8				X

Component Groups Requiring an Aging Management Review

Table 2.3.3-2 Components Supporting Residual Heat Removal System [E11] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Material
Bolting	Pressure Boundary	Carbon Steel
Bolting	Pressure Boundary	Stainless Steel
Conductivity Element	Fission Product Barrier, Pressure Boundary	Stainless Steel
Heat Exchanger Channel Assembly	Pressure Boundary	Carbon Steel
Heat Exchanger Impingement Plate	Shelter/ Protection	Stainless Steel
Heat Exchanger- Shell	Fission Product Barrier, Pressure Boundary	Carbon Steel
Heat Exchanger Tube Sheet	Fission Product Barrier Pressure Boundary	Carbon Steel Stainless Steel
Heat Exchanger Tubes	Fission Product Barrier, Pressure Boundary	Stainless Steel
Piping	Fission Product Barrier, Pressure Boundary	Carbon Steel
Pump Casings	Fission Product Barrier, Pressure Boundary	Carbon Steel
Pump Casings - Bowl Assembly	Pressure Boundary	Cast Austenitic Stainless Steel
Pump Column / Discharge Head	Pressure Boundary	Carbon Steel
Pump Sub Base	Structural Support	Carbon Steel
Restricting Orifices	Fission Product Barrier, Pressure Boundary, Flow Restriction	Stainless Steel
Strainer Basket	Debris Protection	Stainless Steel
Strainer Bodies	Debris Protection	Carbon Steel
Strainers	Debris Protection	Stainless Steel
Thermowell	Fission Product Barrier, Pressure Boundary	Carbon Steel
Tubing	Pressure Boundary	Copper Alloy
Valve Bodies	Pressure Boundary	Carbon Steel

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Component Groups Requiring an Aging Management Review

Table 2.3.4-16 Components Supporting Traveling Water Screens/ Trash Rack System [W33] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Material
Bolting	Pressure Boundary	Carbon Steel
Sight Glasses*	Pressure Boundary	Ceramic
Trash Racks	Debris Protection	Carbon Steel
Traveling Screen	Debris Protection	Carbon Steel Stainless Steel Copper Alloy*
Valve Bodies	Pressure Boundary	Carbon Steel

* No aging effects requiring management

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Component Groups Requiring an Aging Management Review

Table 2.3.4-18 Components Supporting Fire Protection System [X43] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Material
Bolting	Pressure Boundary	Carbon Steel
Fire Doors	Fire Barrier	Carbon Steel Galvanized Steel Copper Alloy Stainless Steel Aluminum Nonmetallic, Inorganic-Gypsum Fibers, nonasbestos synthetic Nonmetallic, organic
Fire Hydrants	Pressure Boundary	Cast Iron
Fittings	Pressure Boundary	Cast Iron
Fittings	Pressure Boundary	Copper Alloy Cast Iron
Fusible Material	Pressure Boundary	Nonferrous Metal
Kaowool and Hold-down Straps	Fire Barrier	Galvanized Steel, Insulation material
Nozzles	Flow Restriction	Aluminum Copper Alloy
Nozzles	Flow Restriction	Copper Alloy
Penetration Seals	Fire Barrier	Concrete Ceramics Carbon Steel Synthetic Fiber Elastomers
Pilot Valves	Pressure Boundary	Aluminum
Pipe Line Strainers	Pressure Boundary	Cast Iron
Piping	Pressure Boundary	Carbon Steel Aluminum Galvanized Steel Copper Alloy Cast Iron
Piping	Pressure Boundary	Carbon Steel Stainless Steel
Piping	Pressure Boundary	Carbon Steel Galvanized Steel
Pump Casings	Pressure Boundary	Cast Iron
Restricting Orifices	Pressure Boundary, Flow Restriction	Stainless Steel
Sprinkler Head Bulbs	Pressure Boundary	Ceramics

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Component Groups Requiring an Aging Management Review

Table 2.4.3-1 Components Supporting Primary Containment [T23] Intended Functions and Their Component Functions

Structural Component	Component Functions	Material
Anchors and Bolts	Structural Support; Nonsafety Related Structural Support	Carbon Steel Galvanized Steel Stainless Steel
Blind Flange*	Fission Product Barrier	Carbon Steel
Bolting*	Fission Product Barrier	Carbon Steel
Containment Isolation Valves *	Fission Product Barrier	Carbon Steel
Containment Isolation Valves*	Fission Product Barrier	Stainless Steel
Containment Penetrations (Mechanical only)	Fission Product Barrier	Carbon Steel Stainless Steel
Miscellaneous Steel	Structural Support; Radiation Shielding; Pipe Whip Restraint; Nonsafety Related Structural Support	Carbon Steel Galvanized Steel
Piping*	Fission Product Barrier	Carbon Steel
Piping*	Fission Product Barrier	Stainless Steel
Reinforced Concrete	Structural Support; Shelter/Protection; Flood Barrier; Fission Product Barrier; Radiation Shielding; Missile Barrier; HE/ME Shielding	Concrete Carbon Steel
Steel Bellows (inside Vent Pipe)	Pressure Boundary; Fission Product Barrier	Carbon Steel Stainless Steel
Structural Steel	Structural Support; Shelter/Protection; Radiation Shielding; Missile Barrier; HE/ME Shielding; Pipe Whip Restraint; Nonsafety Related Structural Support; Pressure Boundary Fission Product Barrier; Exchange Heat	Carbon Steel Stainless Steel
Tubing*	Fission Product Barrier; Pressure Boundary	Stainless Steel
Unreinforced Concrete	Radiation Shielding	Unreinforced Concrete**
Vent Pipe, Vent Header, Downcomers	Fission Product Barrier; Pressure Boundary	Carbon Steel

* Piping and valves include components from systems P51, P21, T23, G51, G11, D11, and C51. These are all included in function T23-01, Torus/Drywell.
** No aging effects requiring management

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Table 3.2.1-2 Aging Effects Requiring Management for Components Supporting Nuclear Boiler System [B21] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Bolting / C.2.1.1.6 (Class 1)	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload	Torque Activities Inservice Inspection Program
Bolting / C.2.2.10.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program
Crack Growth Monitor / C.2.1.1.4 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections
Flow Nozzle / C.2.1.1.3 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Galvanic Susceptibility Inspections Component Cyclic or Transient Limit Program Flow Accelerated Corrosion Program Treated Water Systems Piping Inspections
Piping / C.2.2.1.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections ~~Flow Accelerated Corrosion Program~~
Piping / C.2.2.1.2 (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections

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Table 3.2.1-2 Aging Effects Requiring Management for Components Supporting Nuclear Boiler System [B21] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Piping / C.2.2.2.2 (non-Class 1)	Pressure Boundary Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections
~~Piping / C.2.2.3.1 (non-Class 1)~~	~~Pressure Boundary Fission Product Barrier~~	~~Torus Water~~	~~Carbon Steel~~	~~Loss of Material Cracking~~	~~Suppression Pool Chemistry Control Torus Submerged Components Inspection Program~~
Piping / C.2.2.3.2 (non-Class 1)	Pressure Boundary Fission Product Barrier	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Torus Submerged Components Inspection Program
Piping / C.2.1.1.3 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Galvanic Susceptibility Inspections Component Cyclic or Transient Limit Program Flow Accelerated Corrosion Program Treated Water Systems Piping Inspections
Piping / C.2.1.1.4 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections
Piping / C.2.2.9.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	~~Inservice Inspection Program~~ Gas Systems Component Inspections Passive Component Inspection Activities

Table 3.2.1-2 Aging Effects Requiring Management for Components Supporting Nuclear Boiler System [B21] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Restricting Orifice / C.2.1.1.4 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Component Cyclic or Transient Limit Program Inservice Inspection Program Treated Water Systems Piping Inspections
Thermowell/ C.2.2.9.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Passive Component Inspection Activities
Thermowell / C.2.1.1.4 (Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Inservice Inspection Program Component Cyclic or Transient Limit Program Treated Water Systems Piping Inspections
Valve Bodies / C.2.2.1.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control ~~Flow Accelerated Corrosion Program~~ Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections
Valve Bodies / C.2.2.1.2 (non-Class 1)	Pressure Boundary Fission Product Barrier	Reactor Water	Stainless Steel	Loss of Material Cracking	Reactor Water Chemistry Control Treated Water Systems Piping Inspections
Valve Bodies / C.2.2.9.1 (non-Class 1)	Pressure Boundary Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspections Inservice Inspection Program Passive Component Inspection Activities

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Table 3.2.3-2 Aging Effects Requiring Management for Components Supporting Residual Heat Removal System [E11] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Pump Casings / C.2.2.3.1	Fission Product Barrier, Pressure Boundary	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections
Pump Casings - Bowl Assembly/ C.2.2.6.2	Pressure Boundary	Raw Water	Cast Austenitic Stainless Steel	Loss of Material Flow Blockage ~~Cracking~~ Loss of Heat Exchanger Performance	PSW and RHRSW Inspection Program Plant Service Water and RHR Service Water Chemistry Control Program Structural Monitoring Program
Pump Column / Discharge Head / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage ~~Cracking~~	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program Galvanic Susceptibility Inspections
Pump Sub Base / C.2.4.1	Structural Support	Inside	Carbon Steel	Loss of Material	Protective Coatings Program
Restricting Orifices / C.2.2.3.2	Fission Product Barrier, Pressure Boundary	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspection
Restricting Orifices / C.2.2.3.2	Fission Product Barrier, Pressure Boundary, Flow Restriction	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspection
Restricting Orifices / C.2.2.6.2	Pressure Boundary, Flow Restriction	Raw Water	Stainless Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program

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Table 3.2.3-2 Aging Effects Requiring Management for Components Supporting Residual Heat Removal System [E11] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Strainer Bodies / C.2.2.6.1	Debris Protection	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program Plant Service Water and RHR Service Water Chemistry Control Program Galvanic Susceptibility Inspections Structural Monitoring Program
Strainers / C.2.2.3.2	Debris Protection	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Torus Submerged Components Inspection Program
Thermowell / C.2.2.3.1	Fission Product Barrier, Pressure Boundary	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections
Tubing / C.2.2.6.3	Pressure Boundary	Raw Water	Copper Alloy	Loss of Material Cracking Flow Blockage	PSW and RHRSW Chemistry Control Program PSW and RHRSW Inspection Program Structural Monitoring Program
Valve Bodies / C.2.2.3.1	Pressure Boundary, Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspection Treated Water Systems Piping Inspection
Valve Bodies/ C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Galvanic Susceptibility Inspections Structural Monitoring Program
Strainer Basket/ C.2.2.6.2	Debris Protection	Raw Water	Stainless Steel	Loss of Material Flow Blockage	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program

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Table 3.2.3-4 Aging Effects Requiring Management for Components Supporting High Pressure Coolant Injection System [E41] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Bolting / C.2.2.10.1	Pressure Boundary Fission Product Barrier	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program
Bolting / C.2.2.10.2	Pressure Boundary Fission Product Barrier	Inside	Stainless Steel	Loss of Preload	Torque Activities
Flexible Connector / C.2.2.9.2	Pressure Boundary Fission Product Barrier	~~Dry~~ Wetted Gas	Stainless Steel	Cracking Loss of Material	Gas Systems Component Inspections
Piping / C.2.2.1.1	Pressure Boundary Fission Product Barrier	Reactor Water	Carbon Steel	Loss of Material Cracking	Reactor Water Chemistry Control Galvanic Susceptibility Inspections Flow Accelerated Corrosion Program Treated Water Systems Piping Inspections
Piping / C.2.2.2.1	Pressure Boundary Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections
Piping / C.2.2.2.2	Pressure Boundary Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Program Treated Water Systems Piping Inspections
Piping / C.2.2.3.1	Pressure Boundary Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspections Treated Water Systems Piping Inspections Torus Submerged Components Inspection Program Protective Coatings Program
Piping / C.2.2.3.2	Pressure Boundary Fission Product Barrier	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Torus Submerged Components Inspection Program

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Table 3.2.3-5 Aging Effects Requiring Management for Components Supporting Reactor Core Isolation Cooling System [E51] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/ Activity
Valve Bodies / C.2.2.9.2	Pressure Boundary Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections ~~Passive Component Inspection Activities~~

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Table 3.2.3-7 Aging Effects Requiring Management for Components Supporting Primary Containment Purge and Inerting System [T48] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Bolting / C.2.2.10.1	Pressure Boundary	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program
Bolting / C.2.2.10.2	Pressure Boundary	Inside	Stainless Steel	Loss of Preload	Torque Activities
Flex Hose / C.2.2.9.1	Pressure Boundary	Air	Stainless Steel	Cracking	Gas Systems Component Inspections
Nitrogen Tank Jacket / C.2.2.9.1	Structural Support	Air	Carbon Steel	Cracking Loss of Material	Gas Systems Component Inspections Passive Component Inspection Activities
Piping / C.2.2.3.1	Pressure Boundary	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Galvanic Susceptibility Inspections Torus Submerged Components Inspection Program Protective Coatings Program
~~Piping / C.2.2.3.1~~	~~Pressure Boundary~~	~~Torus Water~~	~~Carbon Steel~~	~~Loss of Material~~ ~~Cracking~~	~~Suppression Pool Chemistry Control~~ ~~Torus Submerged Components Inspection Program~~
Piping / C.2.2.3.2	Pressure Boundary	Torus Water	Stainless Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections
Piping / C.2.2.8.2	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required
Piping / C.2.2.9.1	Pressure Boundary	Wetted Gas	Carbon Steel	Cracking Loss of Material	Gas Systems Component Inspections Passive Component Inspection Activities
Pressure Buildup Coil / C.2.2.8.2	Pressure Boundary Exchange Heat	Dried Gas	Stainless Steel	Cracking	None Required
Rupture Disc / C.2.2.8.2	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required
Storage Tank / C.2.2.8.2	Pressure Boundary	Dried Gas	Stainless Steel	Cracking	None Required

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Table 3.2.4-2 Aging Effects Requiring Management for Components Supporting Refueling Platform Equipment Assembly [F15] Intended Functions and Their Component Functions

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Anchors and Bolts C.2.6.3	Structural support Nonsafety Related Structural Support	Inside	Carbon steel	Loss of material	Protective Coatings Program Overhead Crane and Refueling Platform Inspection Structural Monitoring Program
Miscellaneous Steel C.2.6.3	Structural support; Nonsafety Related Structural Support	Inside	Carbon steel	Loss of material	Protective Coatings Program Overhead Crane and Refueling Platform Inspection Structural Monitoring Program
Rivets	Structural Support	Inside	Aluminum	None	None Required
Structural Steel C.2.6.3	Structural support	Inside	Carbon steel	Loss of material	Protective Coatings Program Overhead Crane and Refueling Platform Inspection Structural Monitoring Program

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Table 3.2.4-7 Aging Effects Requiring Management for Components Supporting Plant Service Water System [P41] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Bolting / C.2.2.10.1	Pressure Boundary	Outside, Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program
Flexible Connector / C.2.2.6.2	Pressure Boundary	Raw Water	Stainless Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program Plant Service Water and RHR Service Water Chemistry Control Program Structural Monitoring Program
Piping / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program Galvanic Susceptibility Inspections
Piping / C.2.2.6.2	Pressure Boundary	Raw Water	Stainless Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program
Pump Bowl Assembly / C.2.2.6.2	Pressure Boundary	Raw Water	Cast Austenitic Stainless Steel	Loss of Material Flow Blockage ~~Cracking~~	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program
Pump Discharge Column / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage ~~Cracking~~	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program
Pump Discharge Head / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage ~~Cracking~~	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program

Table 3.2.4-7 Aging Effects Requiring Management for Components Supporting Plant Service Water System [P41] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Pump Sub Base / C.2.4.1	Structural Support	Inside	Carbon Steel	Loss of Material	Protective Coatings Program
Restricting Orifices / C.2.2.6.2	Pressure Boundary, Flow Restriction	Raw Water	Stainless Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program Plant Service Water and RHR Service Water Chemistry Control Program Structural Monitoring Program
Sight Glass Body / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Galvanic Corrosion Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program
Sight Glass Body/ C.2.2.6.2	Pressure Boundary	Raw Water	Stainless Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program
Strainer / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program
Strainer / C.2.2.6.4	Pressure Boundary	Raw Water	Gray Cast Iron	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program
Strainer Basket / C.2.2.6.2	Debris Protection	Raw Water	Stainless Steel	Loss of Material Flow Blockage ~~Cracking~~	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program
Strainer Basket / C.2.2.6.4	Debris Protection	Raw Water	Gray Cast Iron	Loss of Material Flow Blockage ~~Cracking~~	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program

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Table 3.2.4-7 Aging Effects Requiring Management for Components Supporting Plant Service Water System [P41] Intended Functions and Their Component Functions (Continued)

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Thermowell / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Cracking	PSW and RHRSW Inspection Program Plant Service Water and RHR Service Water Chemistry Control Program
Thermowell / C.2.2.6.2	Pressure Boundary	Raw Water	Stainless Steel	Loss of Material Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program
Valve Bodies / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program Galvanic Susceptibility Inspections
Valve Bodies / C.2.2.6.2	Pressure Boundary	Raw Water	Stainless Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program
Valve Bodies / C.2.2.6.3	Pressure Boundary	Raw Water	Copper Alloy	Loss of Material Cracking Flow Blocka	PSW and RHRSW Chemistry Control Program Structural Monitoring Program PSW and RHRSW Inspection Program
Venturi / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program PSW and RHRSW Chemistry Control Program Structural Monitoring Program Galvanic Susceptibility Inspections

Table 3.2.4-13 Aging Effects Requiring Management for Components Supporting Reactor Building Crane [T31] Intended Functions and Their Component Functions

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Structural Steel/ C.2.6.3	Structural Support	Inside	Carbon Steel	Loss of Material	Overhead Crane and Refueling Platform Inspection Protective Coatings Program Structural Monitoring Program

Table 3.2.4-16 Aging Effects Requiring Management for Components Supporting Traveling Water Screens / Trash Rack System [W33] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Trash Rack / C.2.6.3	Debris Protection	Submerged	Carbon Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program
Traveling Screen / C.2.6.3	Debris Protection	Submerged	Carbon Steel Stainless Steel	Loss of Material	Structural Monitoring Program
Traveling Screen / C.2.6.3	Debris Protection	Submerged	Copper Alloy	None	None Required
Valve Bodies / C.2.2.6.1	Pressure Boundary	Raw Water	Carbon Steel	Loss of Material Flow Blockage Cracking	PSW and RHRSW Inspection Program Plant Service Water and RHR Service Water Chemistry Control Program Galvanic Susceptibility Inspections
Bolting / C.2.2.10.1	Pressure Boundary	Outside	Carbon Steel	Loss of Material Loss of Preload	Torque Activities Protective Coatings Program

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Table 3.2.4-18 Aging Effects Requiring Management for Components Supporting Fire Protection System [X43] Intended Functions and Their Intended Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Boltings / C.2.2.10.1	Pressure Boundary	Inside Outside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program
Fire Doors / C.2.3.4.3	Fire Barrier	Inside	Carbon Steel	Loss of Material	Fire Protection Activities
Fire Doors / C.2.3.4.3	Fire Barrier	Inside	Galvanized Steel Copper Alloy Stainless Steel Aluminum Nonmettalic, Inorganic Gypsum Fibers, Nonasbestos Synthetic Nonmetallic, Organic	None	None Required
Fire Hydrants / C.2.3.1	Pressure Boundary	Raw Water	Cast Iron	Loss of Material Cracking Flow Blockage	Fire Protection Activities
Fittings / C.2.3.1	Pressure Boundary	Raw Water Air	Cast Iron	Loss of Material Cracking Flow Blockage	Fire Protection Activities
Fittings / C.2.3.3	Pressure Boundary	Air	Copper Alloy Cast Iron	Cracking Loss of Material	Fire Protection Activities
Fusible Material / C.2.3.1	Pressure Boundary	Inside	Nonferrous Metal	Loss of Material Cracking	Fire Protection Activities
Kaowool and Hold-Down Straps / ~~C.2.3.4.3~~C.2.3.4.2	Fire Barrier	Inside	Galvanized Steel Insulation Material	~~Cracking~~Loss of Material Change in Material Properties	Fire Protection Activities

Table 3.2.4-19 Aging Effects Requiring Management for Components Supporting Fuel Oil System [Y52] Intended Functions and Their Component Functions

Mechanical Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Bolting / C.2.2.10.1	Pressure Boundary	Inside	Carbon Steel	Loss of Preload Loss of Material	Torque Activities Protective Coatings Program
Discharge Head / C.2.2.7.1	Pressure Boundary	Fuel Oil	Carbon Steel	Loss of Material Cracking	Diesel Fuel Oil Testing
Flex Hose / C.2.2.7.2	Pressure Boundary	Fuel Oil	Stainless Steel	Loss of Material Cracking	Diesel Fuel Oil Testing
Manway Shell / C.2.2.9.1	Shelter/ Protection	Air	Carbon Steel	Cracking Loss of Material	Gas Systems Component Inspections Passive Component Inspection Activities
Piping / C.2.2.7.1	Pressure Boundary	Fuel Oil	Carbon Steel	Loss of Material Cracking	Diesel Fuel Oil Testing
Piping / C.2.2.7.2	Pressure Boundary	Fuel Oil	Stainless Steel	Loss of Material Cracking	Diesel Fuel Oil Testing
Piping / C.2.2.9.1	Pressure Boundary	Air	Carbon Steel	Loss of Material Cracking	Gas Systems Component Inspection Passive Component Inspection Activities
Piping / C.2.2.9.2	Pressure Boundary	Air	Stainless Steel	Cracking Loss of Material	Gas Systems Component Inspections
Pump / C.2.2.7.1	Pressure Boundary	Fuel Oil	Carbon Steel	Loss of Material Cracking	Diesel Fuel Oil Testing
Strainer Basket / C.2.2.7.2	Shelter/ Protection	Fuel Oil	Stainless Steel	Loss of Material ~~Cracking~~	Diesel Fuel Oil Testing
Tank / C.2.2.7.1	Pressure Boundary	Fuel Oil	Carbon Steel	~~Cracking~~ Loss of Material	Diesel Fuel Oil Testing

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Table 3.3.1-3 Aging Effects Requiring Management for Components Supporting Primary Containment [T23] Intended Functions and Their Component Functions

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Anchors and Bolts / C.2.6.2	Structural Support; Nonsafety Related Structural Support	Containment Atmosphere; Embedded; Inside Torus Water	Carbon Steel Galvanized Steel Stainless Steel	Loss of Material	Protective Coatings Program Inservice Inspection Program Suppression Pool Chemistry Control
Blind Flange* / C.2.2.3.1	Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material Cracking	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections
Containment Isolation Valves* / C.2.2.2.2	Fission Product Barrier	Demin Water	Stainless Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections
Containment Isolation Valves* / C.2.2.3.1	Fission Product Barrier	Demin Water	Carbon Steel	Loss of Material Cracking	Demineralized Water and Condensate Storage Tank Chemistry Control Treated Water Systems Piping Inspections
Containment Isolation Valves* / C.2.2.3.1	Fission Product Barrier	Torus Water	Carbon Steel	Loss of Material	Suppression Pool Chemistry Control Treated Water Systems Piping Inspections
Containment Isolation Valves* / ~~C.2.2.6.2~~C.2.6.2	Fission Product Barrier	Raw Water	Carbon Steel	Loss of Material Cracking	Passive Component Inspection Activities
Containment Isolation Valves* / C.2.2.9.1	Fission Product Barrier	Wetted Gas	Carbon Steel	Loss of Material	Gas Systems Component Inspections Passive Component Inspection Activities
Containment Isolation Valves* / C.2.2.9.2	Fission Product Barrier	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspection
Containment Penetrations (Mechanical only) / C.2.6.2	Fission Product Barrier	Containment Atmosphere; Embedded; Inside	Carbon Steel Stainless Steel	Loss of Material	Protective Coatings Program Inservice Inspection Program Primary Containment Leakage Rate Testing Program

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Table 3.3.1-3 Aging Effects Requiring Management for Components Supporting Primary Containment [T23] Intended Functions and Their Component Functions (Continued)

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Structural Steel / C.2.6.2	Structural Support; Shelter/Protection; Pressure Boundary; Radiation Shielding; Nonsafety Related Structural Support; HE/ME Shielding; Missile Barrier; Pipe Whip Restraint; Fission Product Barrier; Exchange Heat	Containment Atmosphere; Inside; Torus Water; Embedded	Carbon Steel Stainless Steel	Loss of Material Cracking	Protective Coatings Program Primary Containment Leakage Rate Testing Program Inservice Inspection Program Suppression Pool Chemistry Control Component Cyclic or Transient Limit Program
Tubing* / C.2.2.9.2	Fission Product Barrier; Pressure Boundary	Wetted Gas	Stainless Steel	Loss of Material Cracking	Gas Systems Component Inspections
Vent Pipe, Vent Header, Downcomers / C.2.6.2	Pressure Boundary Fission Product Barrier	Containment Atmosphere; High Humidity; Inside; Torus Water	Carbon Steel	Loss of Material Cracking	Protective Coatings Program Inservice Inspection Program Primary Containment Leakage Rate Testing Program Component Cyclic or Transient Limit Program Suppression Pool Chemistry Control
Bolting / C.2.2.10.1	Pressure Boundary	Inside Containment Atmosphere	Carbon Steel	Loss of Material Loss of Preload	Protective Coatings Program Torque Activities

* Piping and valve bodies include components from systems P51, P21, T23, G51, G11, D11, and C51. These are all included in function T23-01, Torus/Drywell.

Table 3.3.1-5 Aging Effects Requiring Management for Components Supporting Reactor Building [T29] Intended Functions and Their Component Functions

Structural Component	Component Functions	Environment	Material	Aging Effects	Aging Management Program/Activity
Anchors and Bolts / C.2.6.3	Structural Support; Nonsafety Related Structural Support	Inside; Outside	Carbon Steel	Loss of Material	Protective Coatings Program Structural Monitoring Program
Blowout Panels / C.2.6.6	Structural Support; Fission Product Barrier	Inside	Aluminum	None	None Required
Miscellaneous Steel / C.2.6.3	Structural Support; HE/ME Shielding; Nonsafety Related Structural Support	Inside; Outside	Carbon Steel Galvanized Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program
Miscellaneous Steel / C.2.6.3	Structural Support; HE/ME Shielding; Nonsafety Related Structural Support	Inside; Outside	Stainless Steel	None	None Required
Panel Joint Seals and Sealants / C.2.6.7	Shelter/Protection; Fission Product Barrier	Inside; Outside	Elastomers; Nonmetallic, Inorganic	Material Property Changes and Cracking Loss of Adhesion	Structural Monitoring Program ~~Protective Coatings Program~~
Reinforced Concrete C.2.6.1	Structural Support; Fire Barrier; Shelter/Protection; Flood Barrier; Fission Product Barrier; Radiation Shielding; Missile Barrier; HE/ME Shielding; Nonsafety Related Structural Support	Inside; Outside	Concrete Masonry Block Carbon Steel	Loss of Material Cracking	Structural Monitoring Program Protective Coatings Program
Structural Steel C.2.6.3	Structural Support; Missile Barrier; Nonsafety Related Structural Support	Inside; Outside; Submerged	Carbon Steel Galvanized Steel Stainless Steel	Loss of Material	Structural Monitoring Program Protective Coatings Program Overhead Crane and Refueling Platform Inspections

C.2 AGING MANAGEMENT REVIEWS

Section C.2 of Appendix C provides an aging management summary for each unique structure, component, or commodity group at Plant Hatch determined to require aging management during the period of extended operation. This summary includes identification of aging effects requiring management, aging management programs utilized to manage these aging effects, and a demonstration as to how the identified aging management programs manage aging effects requiring management using attribute tables. Section C.1 of the LRA provides discussion of aging effects and environments. Appendix A of the LRA provides descriptions of aging management programs required to manage aging effects requiring management.

C.2.1 AGING MANAGEMENT REVIEWS FOR CLASS 1 MECHANICAL DISCIPLINE COMMODITIES

C.2.1.1 Class 1 Components Environment Description

Class 1 components are subject to an environment of reactor water under normal conditions. The reactor water environment is defined in section C.1.2.1.

C.2.1.1.1 Aging Management Review for the Reactor Pressure Vessel

The reactor pressure vessel (RPV) consists of the following components:

- Shell and closure heads
- Nozzles, Appurtenances, and Penetrations
- Attachments and connecting welds (brackets and lugs)
- RPV head closure studs

The RPV and associated components are constructed from carbon steel, low alloy steel, austenitic stainless steel, and nickel based alloys.

Systems

B11 – Reactor Assembly (2.3.1.1)

Aging Effects Requiring Management

- *Cracking* (C.1.2.1.2) due to stress corrosion cracking (SCC) and fatigue. The SCC aging effect does not apply to the CRD stub tubes and the low alloy and carbon steel reactor vessel safe ends.
- *Loss of fracture toughness* (C.1.2.1.3) due to neutron embrittlement.

A complete discussion of the applicable aging effect determinations may be found in section C.1 of the LRA or by using the above links.

Aging Management Programs

Aging management programs determined to manage aging effects requiring management are as follows:

C.2.1.1.2 Aging Management Review for the Reactor Pressure Vessel Internals

The reactor pressure vessel internals requiring an aging management review consist of the following components:

- Shroud and repair hardware
- Shroud support
- Core spray spargers and internal piping
- Top guide - Unit 1 only (Unit 2 has wedges and will not lift even with completely cracked holddown assemblies)
- CRD housing and control rod guide tubes
- Jet pump assemblies

The reactor pressure vessel internals (RPV Internals) are constructed from carbon low alloy steel, cast, wrought, and forged austenitic stainless steels, and nickel based alloys.

Systems

B11 – Reactor Assembly (2.3.1.1)

Aging Effects Requiring Management

- *Cracking* (C.1.2.1.2) due to stress corrosion cracking (SCC) and fatigue. The SCC aging effect is not applicable to the low alloy steel reactor assembly shroud supports.

Aging Management Programs

Aging management programs determined to manage aging effects requiring management are as follows:

- *Reactor Water Chemistry Control* (A.1.1)
- *Inservice Inspection Program (ISI Program)* (A.1.9)
- *Boiling Water Reactor Vessel Internals Program (BWRVIP)* (A.1.15)

A complete discussion of the applicable aging management programs may be found in Appendix A of the LRA or by using the above links.

Demonstration of Aging Management

What follows is a demonstration that the aging effects requiring management identified will be adequately managed during the period of extended operation.

Management of Cracking due to Stress Corrosion Cracking

Reactor Water Chemistry Control serves to manage cracking due to SCC by controlling electrochemical corrosion potential (ECP) in accordance with the recommendations of EPRI BWR water chemistry guidelines." This can be accomplished through the use of filter / demineralizers which limit halides and other impurities within the feedwater and hydrogen

C.2.2.3 Non-Class 1 Components Suppression Pool Water Environment Description

Components within section C.2.2.3 are subject to an environment of suppression pool water under normal conditions. The suppression pool water environment is defined in section C.1.2.2.

C.2.2.3.1 Aging Management Review for Non-Class 1 Carbon Steel Components Within the Suppression Pool Environment

This commodity group consists of carbon steel commodities with an internal environment of suppression pool water or submerged within the suppression pool. The following component types are included within this evaluation:

- Piping
- Valve bodies
- Pump casings
- Thermowells
- Blind flange

Systems

~~B21 - Nuclear Boiler (2.3.1.2)~~

- E11 – Residual Heat Removal (2.3.3.2)
- E21 – Core Spray (2.3.3.3)
- E41 – High Pressure Coolant Injection (2.3.3.4)
- E51 – Reactor Core Isolation Cooling (2.3.3.5)
- T23 – Primary Containment (2.4.3)
- T48 – Primary Containment Purge and Inerting (2.3.3.7)

Aging Effects Requiring Management

- *Loss of material* (C.1.2.2.1) due to general corrosion, galvanic corrosion, crevice corrosion, pitting, microbiologically influenced corrosion (MIC), and erosion corrosion.
- *Cracking* (C.1.2.2.2) due to thermal fatigue.

A complete discussion of the applicable aging effect determinations may be found in section C.1 of the LRA or by using the above links.

Aging Management Programs

Aging management programs determined to manage aging effects requiring management are as follows:

- *Suppression Pool Chemistry Control* (A.1.7)
- *Protective Coatings Program* (A.2.3)

C.2.2.6 Non-Class 1 Components River Water Environment Description

River water consists of water taken directly from the Altamaha River for use as cooling water for various systems. See section C.1.2.4 for a description of the river water environment.

C.2.2.6.1 Aging Management Review for Non-Class 1 Carbon Steel Components Within the River Water Environment

This commodity group includes carbon steel components exposed to an internal environment of river water. The following component types are included within this evaluation:

- Piping
- Valve bodies
- Strainer bodies
- Discharge venturies
- Sight glass bodies
- Thermowells
- Pump discharge columns
- Pump discharge heads

Systems

- W33 – Traveling Water Screen, Trash Racks (2.3.4.16)
- P41 – Plant Service Water (2.3.4.7)
- E11 – Residual Heat Removal (2.3.3.2)

Aging Effects Requiring Management

- *Loss of material* (C.1.2.4.1) due to general corrosion, galvanic corrosion, erosion corrosion, crevice corrosion, pitting, microbiologically influenced corrosion (MIC), and fouling.
- *Cracking* (C.1.2.4.2) due to thermal fatigue. This aging effect is not applicable to the E11 and P41 pump discharge columns/discharge heads in this environment since the components are submerged in river water and are free to expand or contract.
- *Flow blockage* (C.1.2.4.3) due to fouling.

A complete discussion of aging effect determination is found in section C.1 or by following the above links.

Aging Management Programs

Aging management programs determined to manage aging effects requiring management are as follows:

- *PSW and RHRSW Chemistry Control* (A.1.4)
- *PSW and RHRSW Inspection Program* (A.1.13)

C.2.2.6.2 Aging Management Review for Non-Class 1 Stainless Steel Components Within the River Water Environment

This commodity group includes stainless steel and cast austenitic stainless steel components with an internal environment of river water. The following component types are included within this evaluation:

- Piping
- Tubing
- Restricting orifices
- Thermowells
- Strainer baskets
- Flexible connectors
- Valve bodies
- Pump bowl assemblies
- Site glass body

Systems

- E11 – Residual Heat Removal System (2.3.3.2)
- P41 – Plant Service Water (2.3.4.7)

Aging Effects Requiring Management

- *Loss of material* (C.1.2.4.1) due to crevice corrosion, pitting, microbiologically influenced corrosion (MIC), and fouling.
- *Cracking* (C.1.2.4.2) due thermal fatigue. This aging effect is not applicable to the P41 strainer baskets and the E11 and P41 pump bowl assemblies in this environment since the components are submerged in river water and are free to expand or contract.
- *Flow blockage* (C.1.2.4.3) due to fouling.

A complete discussion of aging effect determination is found in section C.1 or by following the above links.

Aging Management Programs

Aging management programs determined to manage aging effects requiring management are as follows:

- *PSW and RHRSW Chemistry Control* (A.1.4)
- *PSW and RHRSW Inspection Program* (A.1.13)
- *Structural Monitoring Program* (A.2.5)

A complete discussion of the applicable aging management programs may be found in Appendix A of the LRA or by using the above links.

C.2.2.6.4 Aging Management Review for Non-Class 1 Gray Cast Iron Components Within the River Water Environment

This commodity group includes gray cast iron components with an internal environment of river water. The following component types are included within this evaluation:

- Strainers and Strainer Baskets

Systems

P41 – Plant Service Water (2.3.4.7)

Aging Effects Requiring Management

- Loss of material (C.1.2.4.1) due to crevice corrosion, pitting, general corrosion, microbiologically influenced corrosion (MIC), selective leaching, erosion corrosion, galvanic corrosion, and fouling.
- Cracking (C.1.2.4.2) due to thermal fatigue. This aging effect is not applicable to the strainer baskets since the components are submerged in this environment and are free to expand or contract.
- Flow blockage (C.1.2.4.3) due to fouling.

A complete discussion of aging effect determination is found in section C.1 or by following the above links.

Aging Management Programs

Aging management programs determined to manage aging effects requiring management are as follows:

- *PSW and RHRSW Chemistry Control* (A.1.4)
- *PSW and RHRSW Inspection Program* (A.1.13)
- *Structural Monitoring Program (A.2.5)*

A complete discussion of the applicable aging management programs may be found in Appendix A of the LRA or by using the above links.

Demonstration of Aging Management

What follows is a demonstration that the aging effects requiring management identified will be adequately managed during the period of extended operation.

Management of Loss of Material and Flow Blockage

PSW and RHRSW Chemistry Control Program provides for treatment with sodium hypochlorite and sodium bromide. Both sodium hypochlorite and sodium bromide are batch added (shock treatment) to the PSW Systems as required. These additions are intended to minimize MIC and macroorganism intrusion within service water systems.

The *PSW and RHRSW Inspection Program* addresses loss of material and flow blockage and implements Plant Hatch's commitment with regard to Generic Letter 89-13. This program

C.2.2.7 Non-Class 1 Components Fuel Oil Environment Description

Components within section C.2.2.7 are subject to an environment of fuel oil under normal conditions. The fuel oil environment is described in section C.1.2.5.

C.2.2.7.1 Aging Management Review for Non-Class 1 Carbon Steel Components Within the Fuel Oil Environment

This commodity group includes carbon steel exposed to an internal environment of fuel oil. The following component types are included within this evaluation:

- Large and small bore piping
- Valve bodies
- EDG transfer pump
- EDG day tanks
- EDG storage tanks
- EDG transfer pump discharge head

Systems

Y52 – Fuel Oil (2.3.4.19)

Aging Effects Requiring Management

- *Loss of material* (C.1.2.5.1) due to general corrosion, galvanic corrosion, crevice corrosion, pitting, and MIC.
- *Cracking* (C.1.2.5.2) due to thermal fatigue. This aging effect is not applicable to the EDG storage tanks since the tanks are underground and temperature fluctuations are insignificant.

A complete discussion of the applicable aging effect determinations may be found in section C.1 of the LRA or by using the above links.

Aging Management Programs

Aging management programs determined to manage aging effects requiring management are as follows:

- *Diesel Fuel Oil Testing* (A.1.3)

A complete discussion of the applicable aging management programs may be found in Appendix A of the LRA or by using the above links.

Demonstration of Aging Management

What follows is a demonstration that the aging effects requiring management identified will be adequately managed during the period of extended operation.

C.2.2.7.2 Aging Management Review for Non-Class 1 Stainless Steel Components Within the Fuel Oil Environment

This commodity group includes stainless steel components exposed to an internal environment of fuel oil. The following component types are included within this evaluation:

- Piping
- Flexible hose
- Strainer baskets
- Valve bodies

Systems

Y52 – Fuel Oil (2.3.4.19)

Aging Effects Requiring Management

- *Loss of material* (C.1.2.5.1) due to crevice corrosion, pitting, and microbiologically influenced corrosion (MIC).
- *Cracking* (C.1.2.5.2) due to thermal fatigue. This aging effect is not applicable to the strainer baskets since the components are submerged in fuel oil.

A complete discussion of the applicable aging effect determinations may be found in section C.1 of the LRA or by using the above links.

Aging Management Programs

Aging management programs determined to manage aging effects requiring management are as follows:

- *Diesel Fuel Oil Testing* (A.1.3)

A complete discussion of the applicable aging management programs may be found in Appendix A of the LRA or by using the above links.

Demonstration of Aging Management

What follows is a demonstration that the aging effects requiring management identified will be adequately managed during the period of extended operation.

Management of Loss of Material due to General Corrosion, Galvanic corrosion, Pitting, Crevice Corrosion, and MIC

Diesel Fuel Oil Testing provides for sampling and analysis of fuel oil deliveries for water and sediment contamination. Biocides are also added at this time in order to minimize the potential for MIC within components. Water and sediment contamination levels within storage tanks are checked on a regular basis to assure that no significant buildup of contaminants exists. If excessive contamination does occur, the program provides for draining and cleaning of the tank as required to reestablish and maintain acceptable contaminant levels. Fuel oil is also tested for proper viscosity and specific gravity, thereby

LICENSE RENEWAL AGING MANAGEMENT REVIEW SUMMARY SHEET 360 of 363

From: Baker, Ray D.
Sent: Friday, October 13, 2000 1:34 PM
To: 'William F. Burton (E-mail)'
Subject: Scoping/Screening RAI Follow-up

Butch,

Discussions were conducted the week of September 11, 2000 with NRC regarding certain fire protection RAIs and responses. Several aspects of those questions and responses have been clarified by NRC and SNC. The attached files along with files provided to NRC on October 1, 2000 document those clarifications. The clarifications include:

- RAI 2.3.4-FPS-3 Part 1: Additional discussion of the basis for make-up water to the fire water tanks not being in the scope of license renewal for Plant Hatch is provided. REVISED RAI RESPONSE ATTACHED.
- RAI 2.3.4-FPS-3 Part 2: The Fire Hazards Analysis is being revised to restore language previously removed regarding operability requirements for three fire hydrants, including surveillance requirements for those hydrants. This revised RAI response was previously provided to NRC by electronic communication on October 1, 2000.
- RAI 2.3.4-FPS-3 Part 5: Additional discussion is provided regarding the short lived determination for several components. In addition, documentation is provided regarding water fire hose surveillance/replacement. REVISED RAI RESPONSE ATTACHED.
- RAI 2.3.4-FPS-3 Part 7: Additional clarification regarding short lived determination for certain components is provided in the revised response to RAI 2.3.4-FPS-3 Part 5.
- RAI 2.3.4-FPS-3 Part 8: This revised response was previously provided to NRC by electronic communication on October 1, 2000. Also included in that e-mail were three revised evaluation boundary drawing files.
- RAI 2.3.4-FPS-10: This revised response confirms discussions between SNC and NRC regarding a one-time removal and inspection of sprinkler heads consistent with guidance contained in NFPA 25. REVISED RAI RESPONSE ATTACHED.

Please let me know if you have any questions regarding these revised responses.

Ray Baker
8-992-7367

"Always do right. This will gratify some people and astonish the rest." -- Mark Twain

ATTACHMENTS

RAI-2.3.4-FPS-3_1r1.doc (25 KB...

RAI-2.3.4-FPS-3_5r1.doc (26 KB...

RAI-2.3.4-FPS-10r1 doc (26 KB)...

PART 1 OF RAI - 2.3.4 - FPS - 3:

Exclusion of certain fire protection components from the scope of license renewal and from an aging management review

1. Dedicated Storage Tanks

(a) The applicant states in LRA Section 2.3.4.18, that the water supply for the fire protection system inside the protected area is provided by two 300,000 gallon dedicated storage tanks. Each tank is supplied by two deep wells, each with a 700 gpm makeup pump capable of refilling either tank within 8 hours. Flow diagram Volume 1, HL-11033, Sheet 1, “Fire Protection Piping P&ID Pumphouse Layout,” shows that the tank fill line is not highlighted to include this piping within the scope of license renewal. This piping appears to provide water from underground wells to the dedicated storage tanks. Justify the exclusion of this piping from within the scope of license renewal.

(b) Flow diagram Volume 1, HL-11033, Sheet 1, “Fire Protection Piping P&ID Pumphouse Layout,” does not show the pumps which draw water from the wells. Since these wells supply the dedicated storage tanks with water for use by the fire protection system, discuss if these pumps (casings) should also be included within the scope of license renewal and subject to an AMR.

RESPONSE TO PART 1 OF RAI - 2.3.4 - FPS - 3 (Revised 9/28/00):

As described in the response to RAI 2.3.4-FPS-1, FHA section 9.2 Appendix B identifies the SSCs required to protect safety related or safe shutdown components from the effects of fire, and these SSCs are in scope for license renewal. The well water supply system is not relied upon in FHA section 9.2 Appendix B, and is therefore not in the scope of license renewal.

As discussed in a 9/28/00 telecon with NRC, the intent of the well water supply system is not to fight a fire, but to maintain level in the two redundant, 100% capacity each, fire water storage tanks which are maintained at a prescribed level by surveillance requirements. There is sufficient capacity in one tank, at the minimum surveillance level, to quench the design basis fire. The well water supply system is capable of refilling either tank in a minimum of 8 hours, as specified by regulatory requirements. The fill line connects to each tank at the roof such that a break in this line would not drain the associated tank.

A-47039 Attachment C
LICENSE RENEWAL AGING MANAGEMENT REVIEW SUMMARY SHEET 362 of 363

PART 5 OF RAI - 2.3.4 - FPS - 3:

Exclusion of certain fire protection components from the scope of license renewal and from an aging management review

5. System filters, fire extinguishers, fire hoses, and air packs:
System filters, fire extinguishers, fire hoses, and air packs are not included within the scope of license renewal and are not subject to an AMR. (In a July 6, 2000 phone call, the applicant clarified that systems filters were included within scope and are subject to an AMR. However, in the LRA, they are listed as strainers in Table 2.3.4-18). As a result of the staff's experience with license renewal, the staff has found that fire extinguishers, fire hoses, and air packs (within the scope of license renewal) may be excluded, on a plant-specific basis, from an aging management review under 10 CFR 54.21(a)(1)(ii). These components are considered within the scope of license renewal and are typically replaced based on specific performance and condition monitoring activities that clearly establish a routine replacement practice based on a qualified life component. These components may be excluded based on specific performance and condition monitoring activities provided that the applicant (1) identifies and lists in the LRA each component type subject to such replacement, and (2) identifies the applicable programs that conform to appropriate standards (e.g., for fire protection components - applicable NFPA standards and 42 CFR Part 84). Justify the exclusion of these components from the scope of license renewal and an AMR.

RESPONSE TO PART 5 OF RAI - 2.3.4 - FPS - 3 (Revised 9/28/00):

Pursuant to discussions held with NRC during the scoping inspection performed September 11, 2000 through September 15, 2000, the following revised response to this RAI is provided.

Filters are identified as "strainers" in the fire protection system. There are two types of strainers used in the fire protection system: Y-strainers and pipe line basket strainers. Both types are subject to aging management and are included in scope for license renewal.

Fire extinguishers, air packs, and CO_2 hoses are short lived components based on replacement intervals per site approved procedures, and are therefore not subject to AMR. The replacement intervals established by plant procedures are as follows: CO_2 fire extinguisher replacement every 5 years, and dry chemical fire extinguisher replacement every 12 years; air pack replacement every 15 years; CO_2 hose replacement every 5 years. The plant procedures also specify inspection and testing intervals. Water fire hoses are condition and performance monitored routinely, and replaced based on degradation criteria specified in a site-approved procedure, and are therefore not subject to AMR. By plant procedure, water fire hoses are to be unracked, visually inspected, and hydrostatically tested every 2 years. Water fire hoses that do not meet the inspection or hydrostatic test criteria are replaced. Water fire hoses were inadvertently omitted from Table 3.2.4-18.

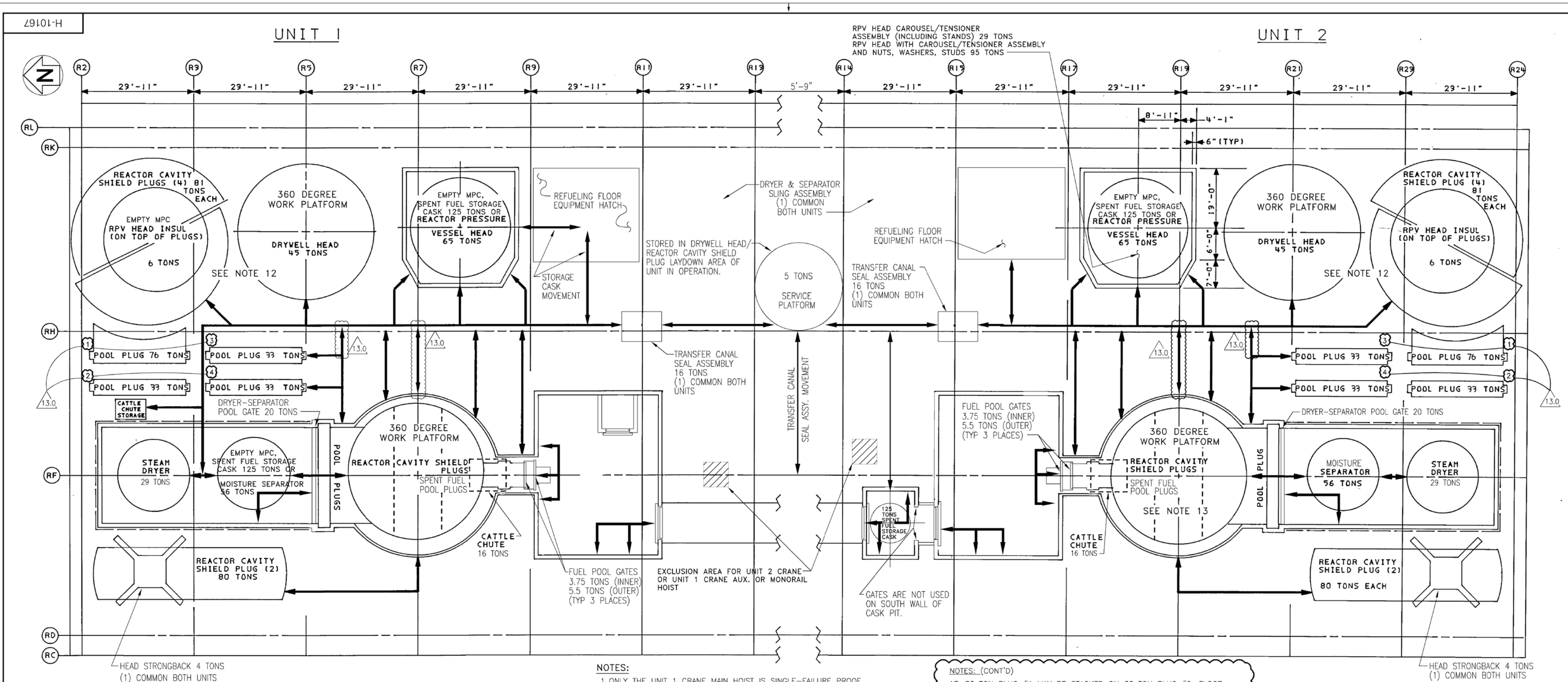
RAI - 2.3.4 - FPS - 10:

LRA Section A.2.1.3 states that the fire protection system design was reviewed against the applicable NFPA codes. NFPA 25, Section 2.3.3.1, “Sprinklers,” states that “where sprinklers have been in place for 50 years, they shall be replaced or representative samples from one or more sample areas shall be submitted to a recognized testing laboratory for field service testing.” As part of the fire protection license renewal programs at Hatch, discuss if NFPA 25 will be implemented to ensure that any aging effects have not degraded the sprinkler and its components from the original performance criteria as intended by the listing. If NFPA 25 will not be implemented at Hatch, provide justification and evidence that other means to detect aging of sprinklers, equivalent to NFPA 25, are available through plant-specific programs and procedures.

RESPONSE TO RAI - 2.3.4 - FPS - 10 (Revised 9/28/00):

Pursuant to discussions held with NRC during the scoping inspection performed September 11, 2000 through September 15, 2000, the following revised response to this RAI is provided.

Although Plant Hatch uses NFPA 25 as general design guidance, Plant Hatch is not committed to compliance with it. Plant Hatch is committed to regulatory requirements as described in the FHA. Thus, in a manner consistent with the guidance of NFPA 25, a one-time inspection will be performed at, or before, 50 years of service life for sprinkler heads in the scope of license renewal. A random sampling of each type of sprinkler head in the scope of license renewal will be submitted to a recognized laboratory for testing. Based on the results, corrective actions would be accomplished, if required, to assure continued sprinkler head function during the period of extended operation. Appendix B, Section 2.1, descibes this one-time inspection which is called “Sprinkler Head Inspections.” Periodic condition and performance monitoring of sprinkler heads is also performed by the fire protection activities.



THE FOLLOWING LIFT HEIGHT RESTRICTIONS APPLY WHEN USING ANY OF THE CRANE HOISTS/ HOOKS OTHER THAN THE UNIT 1 CRANE MAIN HOIST TO LIFT THESE COMPONENTS OVER THE REFUELING FLOOR (ELEV 228'-0").

HEAVY LOAD ITEM ON REFUELING FLOOR	WEIGHT (TONS)	MAX HEIGHT (FT) ABOVE REFUEL FLOOR (BOTTOM OF ITEM)	
1. REACTOR PRESSURE VESSEL HEAD	65.0	5.0	(SEE NOTES 5, 15 & 16)
2. REACTOR CAVITY SHIELD PLUGS (OUTER)	81.0	4.0	(SEE NOTES 7 & 8)
3. REACTOR CAVITY SHIELD PLUGS (INNER)	80.0	4.0	(SEE NOTES 7 & 8)
4. DRYWELL HEAD	45.0	5.0	(SEE NOTE 5)
5. POOL PLUGS	76.0 LARGE ONE 33.0 SMALLER	2.0	
6. SPENT FUEL POOL PLUGS	10.0	3.0	
7. SERVICE PLATFORM	5.0	12.0	
8. RPV HEAD INSULATION	6.0	12.0	
9. REACTOR CAVITY / SPENT FUEL POOL CATTLE CHUTE	16.0	3.0	
10. TRANSFER CANAL SEAL ASSY.	16.0	3.0	
11. DRYER SEPARATOR POOL GATES	20.0	4.0	(SEE NOTE 14)
12. MISC. ITEMS	< 6.0	12.0	(SEE NOTE 11)

NOTES:

1. ONLY THE UNIT 1 CRANE MAIN HOIST IS SINGLE-FAILURE PROOF.
2. USE OF ANY HOIST OTHER THAN THE UNIT #1 CRANE MAIN HOIST OVER ANY EQUIPMENT REQUIRED TO REACH & MAINTAIN COLD SHUTDOWN IS PROHIBITED.
3. ONLY THE UNIT 1 CRANE MAIN HOIST WILL BE USED TO LIFT THE 125 TON SPENT FUEL CASK AND THE FUEL POOL GATES.
4. ONLY THE UNIT 1 CRANE MAIN HOIST WILL BE USED IN EITHER UNIT TO MOVE THE REACTOR CAVITY SHIELD PLUGS, DRYWELL HEAD, RPV HEAD, RPV HEAD CAROUSEL/TENSIONER ASSEMBLY (WITH OR WITHOUT THE RPV HEAD ATTACHED), AND TRANSFER CANAL SEAL TO AND FROM THEIR NORMAL OPERATING LOCATION.
5. THE UNIT 2 CRANE SHALL NOT BE USED TO MOVE EITHER UNIT'S DRYWELL HEAD OR REACTOR PRESSURE VESSEL HEAD FROM ONE UNIT TO THE OTHER.
6. THE UNIT 2 CRANE MAY BE USED TO MOVE THE MOISTURE SEPARATOR OR STEAM DRYER TO OR FROM THEIR OPERATING LOCATIONS TO THE APPROPRIATE LAYDOWN AREA FOR THAT SPECIFIC UNIT WITH A LIFT HEIGHT RESTRICTION OF 6.5 FEET ABOVE THE LAYDOWN AREA (EL 203'-0").
7. THE UNIT 2 CRANE CAN BE USED TO CARRY REACTOR CAVITY SHIELD PLUGS ALONG LOAD PATH FROM ONE UNIT TO THE OTHER PROVIDED THAT THEY ARE ORIENTED TO ENSURE THAT NO PORTION TRAVELS OVER THE FUEL POOLS OR EQUIPMENT HATCHES.
8. SHIELD PLUGS CAN BE TEMPORARILY SET DOWN ANYWHERE ON THE NORTH-SOUTH LOAD PATH ALONG COLUMN LINE RH FOR TRANSFERRING FROM ONE UNIT CRANE TO THE OTHER.
9. FLOOR DESIGNED FOR 1000 PSF LIVE LOAD UNLESS OTHERWISE NOTED.
10. ONLY THE UNIT 1 CRANE MAIN HOIST WILL BE USED TO LIFT THE 360 DEGREE WORK PLATFORM FROM ONE REACTOR BUILDING TO THE OTHER USING DESIGNATED WIRE ROPE SLINGS. SAFE LOAD PATH INCLUDES A SUFFICIENT LIFT HEIGHT TO AVOID INTERFERENCES SUCH AS HANDRAIL & DECAY HEAT REMOVAL PIPING AND SUPPORTS.
11. MISCELLANEOUS LIFTS LESS THAN OR EQUAL TO 6 TONS ARE PERMITTED PROVIDED THE LIFT HEIGHT IS LESS THAN 12 FEET ABOVE THE REFUELING FLOOR AND PROVIDED THE LEAST DIMENSION OF THE ITEM BEING LIFTED IS GREATER THAN 30".
12. THE STORAGE LOCATIONS OF THE (4) OUTER REACTOR CAVITY SHIELD PLUGS AND RPV HEAD INSULATION MAY BE INTERCHANGED WITH THE STORAGE LOCATION SHOWN FOR THE DRYWELL HEAD.
13. THE (6) UNIT 1 REACTOR CAVITY SHIELD PLUGS (FOUR OUTER PLUGS AND TWO INNER PLUGS) MAY BE STORED ON THE "IN PLACE" REACTOR CAVITY SHIELD PLUGS OF UNIT 2, PROVIDED THE UNIT 1 CRANE MAIN HOIST IS USED TO LIFT AND MOVE PLUGS TO AND FROM THIS LOCATION. PLUGS CAN BE STACKED TWO HIGH.
14. THE DRYER/SEPARATOR GATES ARE NOT COMMONLY USED. MOVEMENT OF THE DRYER SEPARATOR GATES WITH THE UNIT 2 CRANE CONSTITUTES A SPECIAL LIFT REQUIRING A LOAD DROP EVALUATION.
15. THE UNIT 2 CRANE SHALL NOT BE USED TO MOVE THE REACTOR PRESSURE VESSEL HEAD CAROUSEL/TENSIONER ASSEMBLY (WITH OR WITHOUT THE RPV HEAD ATTACHED).
16. LIFTING OF THE RPV HEAD IS ONLY ALLOWED WITH THE USE OF THE HEAD STRONGBACK (1F13-E009) FOR THIS EVALUATED HEIGHT.

NOTES: (CONT'D)

17. 33 TON PLUG #4 MAY BE STACKED ON 33 TON PLUG #2. FLOOR LOADING BETWEEN THE STACKED PLUGS AND MOISTURE SEPARATOR POOL MUST BE LIMITED TO 200 PSF WITH PLUGS IN A STACKED CONFIGURATION.
18. THE STORAGE LOCATION FOR THE 10 TON SPENT FUEL POOL PLUGS IS NOT SHOWN. THE FLOOR LOADING FOR THESE PLUGS IS ≤ 1000 PSF AND MAY BE STORED IN ANY CONVENIENT LOCATION WHERE THE ALLOWABLE FLOOR LOADING IS 1000 PSF.

13.0

REFERENCES:

C-10054	UNIT 1 – HEAVY LOAD PATHS FOR CONTROL ROOM ROOF
H-10171	HEAVY LOADS MATRIX WEIGHTS & LIFTS
HT-1630	REQUEST FOR ENGINEERING ASSISTANCE
51GM-MLH-004-0	NUREG-0612 HEAVY LOAD MOVEMENT
NMP-MA-007	RIGGING AND LIFTING PROGRAM
RER 2080212901	
GE REPORT A00-576	SHROUD HEAD AND STEAM DRYER DROP CONSEQUENCES (IC-19039)
BECHTEL CALCULATION BH0-C-S08-V003-0016	DROP OF SEPARATOR, STEAM DRYER AND REACTOR CAVITY SHIELD PLUGS
BECHTEL CALCULATION BH0-C-S08-V001-0009	CASK, RPV HEAD AND DRYWELL HEAD DROPS ONTO REFUEL FLOOR
BECHTEL CALCULATION BH0-C-S08-V002-0001	REFUEL FLOOR SLAB ANALYSIS FOR MISC LOAD DROPS

OVY2000 H10167

SOUTHERN COMPANY

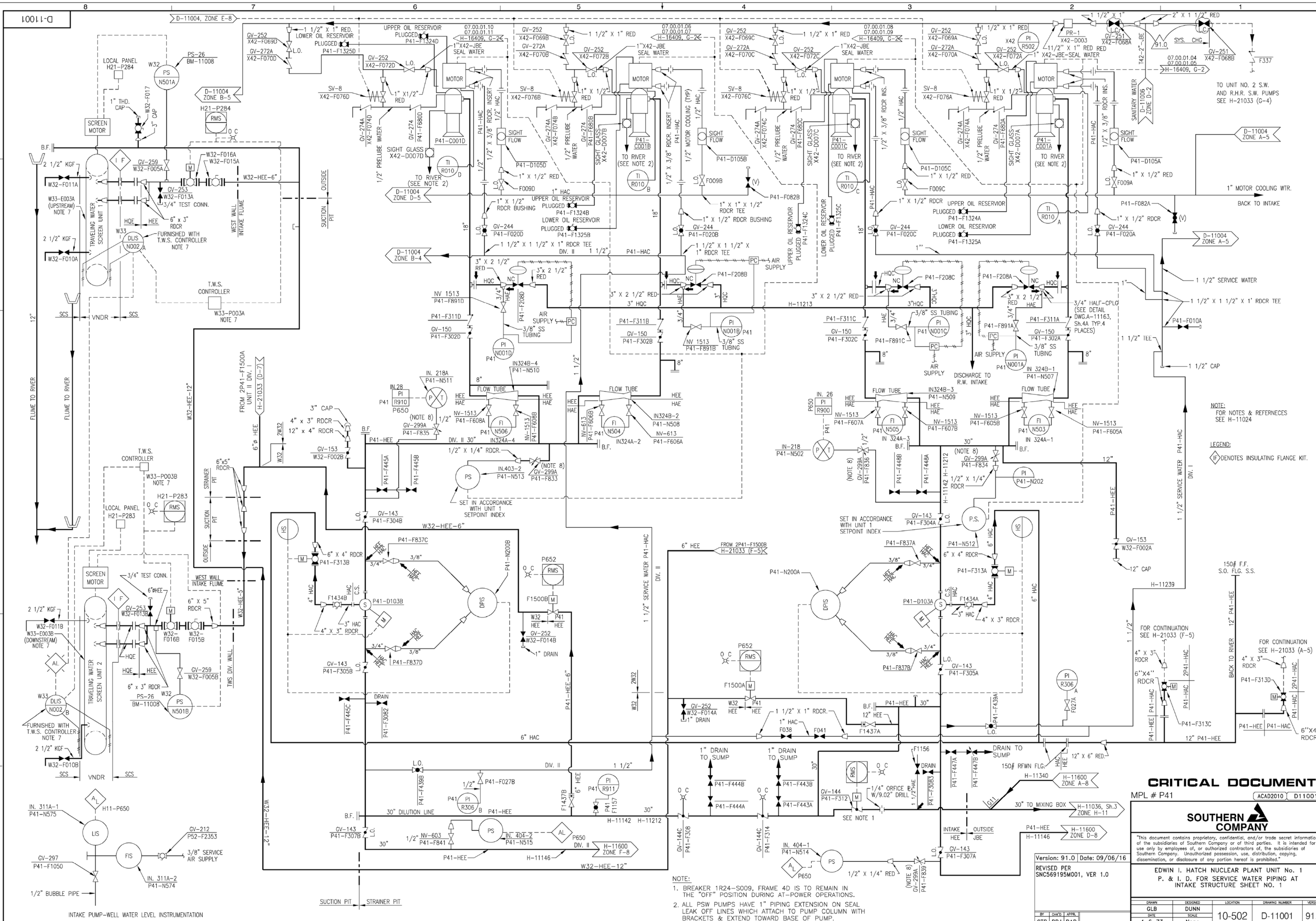
Version: 13.0 | Date: 04/08/15

REVISED PER:
ABN-H03967, VER 1.0

BY	CHK'D	APPR.
GTR	SNM	JTL

EDWIN I. HATCH NUCLEAR PLANT UNIT No.1 & 2
REFUELING FLOOR
HEAVY LOAD PATHS

DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
ADS		10-502	H-10167	13.0
DATE: 10-23-81	SCALE: None			



NOTE:

1. BREAKER 1R24-S009, FRAME 4D IS TO REMAIN IN THE "OFF" POSITION DURING AT-POWER OPERATIONS.
2. ALL PSW PUMPS HAVE 1" PIPING EXTENSION ON SEAL LEAK OFF LINES WHICH ATTACH TO PUMP COLUMN WITH BRACKETS & EXTEND TOWARD BASE OF PUMP.

CRITICAL DOCUMENT

MPL # P41 | ACAD2010 | D11001

SOUTHERN COMPANY

Version: 91.0 | Date: 09/06/16

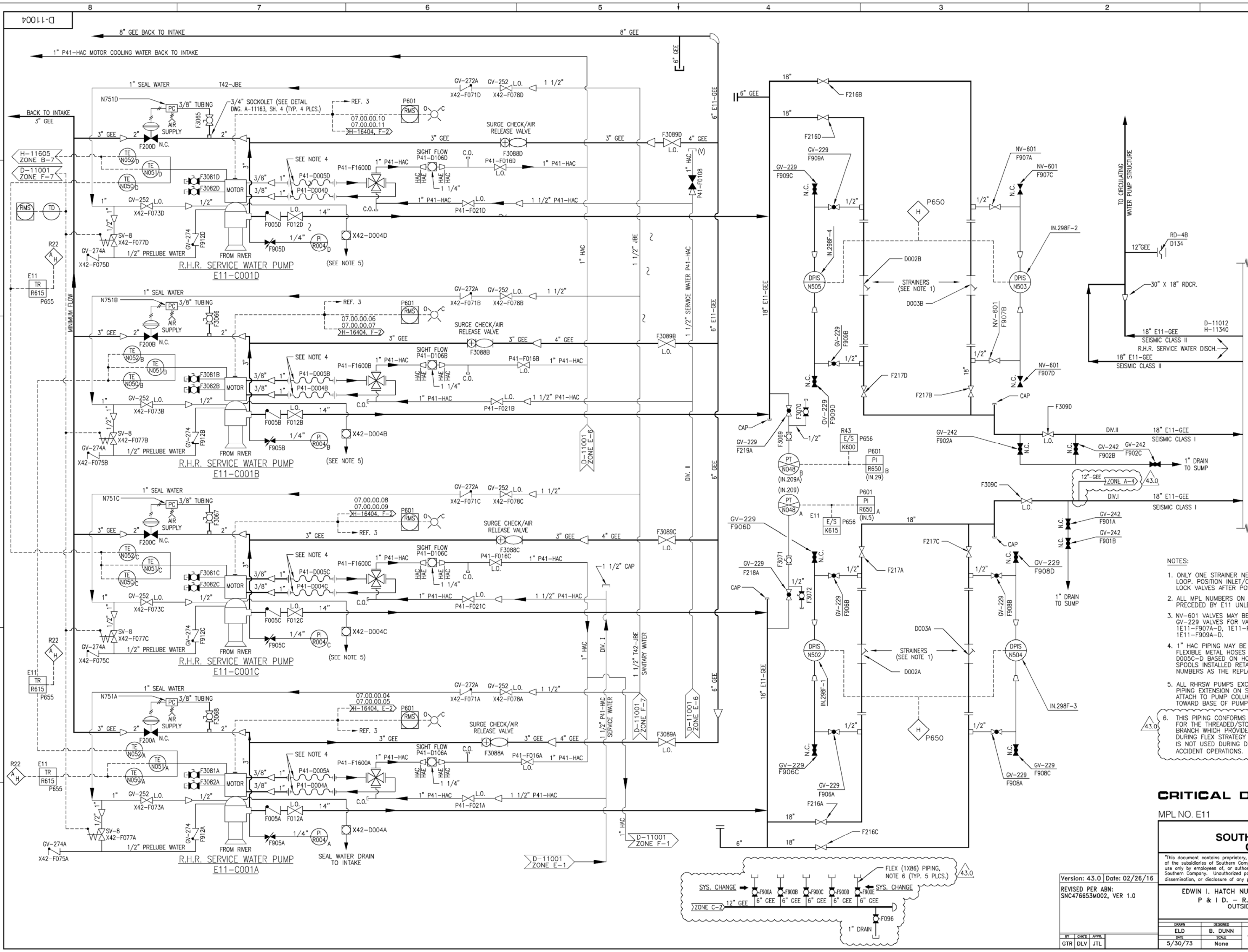
REVISED PER SNC569195M001, VER 1.0

BY GTR | CHK'D BRJ | APP'L DAB

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1
P. & I. D. FOR SERVICE WATER PIPING AT INTAKE STRUCTURE SHEET NO. 1

DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
GLB	DUNN	10-502	D-11001	91.0
DATE 4-6-73	SCALE None			

DRAWING CATEGORY: CRITICAL



NOTES:

1. ONLY ONE STRAINER NEED BE IN SERVICE PER LOOP. POSITION INLET/OUTLET VALVES ACCORDINGLY. LOCK VALVES AFTER POSITIONING.
2. ALL MPL NUMBERS ON THIS DRAWING ARE PRECEDED BY E11 UNLESS OTHERWISE NOTED.
3. NV-601 VALVES MAY BE USED TO REPLACE GV-229 VALVES FOR VALVES 1E11-F906A-D, 1E11-F907A-D, 1E11-F908A-D AND 1E11-F909A-D.
4. 1" HAC PIPING MAY BE INSTALLED IN PLACE OF FLEXIBLE METAL HOSES 1P41-D004A,B,C & D AND D005C-D BASED ON HOSE AVAILABILITY. PIPING SPOOLS INSTALLED RETAIN THE SAME MPL TAG NUMBERS AS THE REPLACED HOSES.
5. ALL RHRSW PUMPS EXCEPT 1E11C001A HAVE 1" PIPING EXTENSION ON SEAL LEAK OFF LINES WHICH ATTACH TO PUMP COLUMN WITH BRACKETS AND EXTEND TOWARD BASE OF PUMP.
6. THIS PIPING CONFORMS TO GEE PIPING CLASS EXCEPT FOR THE THREADED/STORZ ADAPTER LOCATED ON THIS BRANCH WHICH PROVIDES A HOSE CONNECTION FOR USE DURING FLEX STRATEGY IMPLEMENTATION. THIS PIPING IS NOT USED DURING DESIGN BASIS NORMAL OR ACCIDENT OPERATIONS.

43.0

CRITICAL DOCUMENT

MPL NO. E11

Acad2010 D11004

SOUTHERN COMPANY

Version: 43.0 Date: 02/26/16

REVISED PER ABN: SNC476653M002, VER 1.0

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1
P & I D. – R.H.R. SERVICE WATER
OUTSIDE BUILDING

BY	CHK'D	APPR.
GTR	DLV	JTL

DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
ELD	B. DUNN	10-502	D-11004	43.0
DATE: 5/30/73	SCALE: None			

DRAWING CATEGORY: CRITICAL

INDEX

1.	SIMULATOR BLDG. (INCLUDING EOF)	E-10061
2.	SKILLS TRAINING BLDG.	E-10016
3.	WELDING & HP TRAINING	H-10149
4.	ATLANTA STEEL BLDG.	N.A.
5.	WAREHOUSE NO. 3	N.A.
6.	WAREHOUSE NO. 2	D-10021
7.	WAREHOUSE NO. 1	H-10020
8.	WILLIAMS BUILDINGS	
9.	FLAMMABLE GAS STORAGE AREA	N.A.
10.	NON-FLAMMABLE GAS STORAGE AREA	N.A.
11.	TURBINE BUILDING COOLING TOWER A	N.A.
12.	TURBINE BUILDING COOLING TOWER B	N.A.
13.	WAREHOUSE NO. 4	N.A.
14.	ENERGY EDUCATION CENTER	S-75168 & S-76713
15.	SWITCHYARD SUPPORT BLDG.	H-12620
16.	ENVIRONMENTAL BLDG.	H-10134
17.	SERVICE BUILDING AUXILIARY	H-12680
18.	WAREHOUSE NO. 6(PRODUCTION WH.)	H-10099
19.	INTAKE STRUCTURE	H-12610
20.	DIESEL GENERATOR BLDG.	H-12615
21.	OFF GAS RECOMBINER BLDG.	H-15899
22.	SERVICE BLDG.	H-14701
23.	SERVICE BLDG. ANNEX	H-20023
24.	UNIT #1 TURBINE BLDG.	H-12626
25.	DECONTAMINATION CALIBRATION BLDG.	H-12605
26.	UNIT 1 RADWASTE BLDG.	H-15700
27.	UNIT 1 RADWASTE BLDG. ADDITION	H-19004
28.	UNIT 1 H.P.C.I. PUMP ROOM	H-15011
29.	UNIT 1 REACTOR BLDG.	H-15200
30.	UNIT 2 REACTOR BLDG.	H-25941
31.	UNIT 2 H.P.C.I. PUMP ROOM	H-26128
32.	UNIT 2 RADWASTE BLDG.	H-25948
33.	UNIT 2 RADWASTE LOADING DOCK	H-19088
34.	WATER TREATMENT PLANT	H-12602
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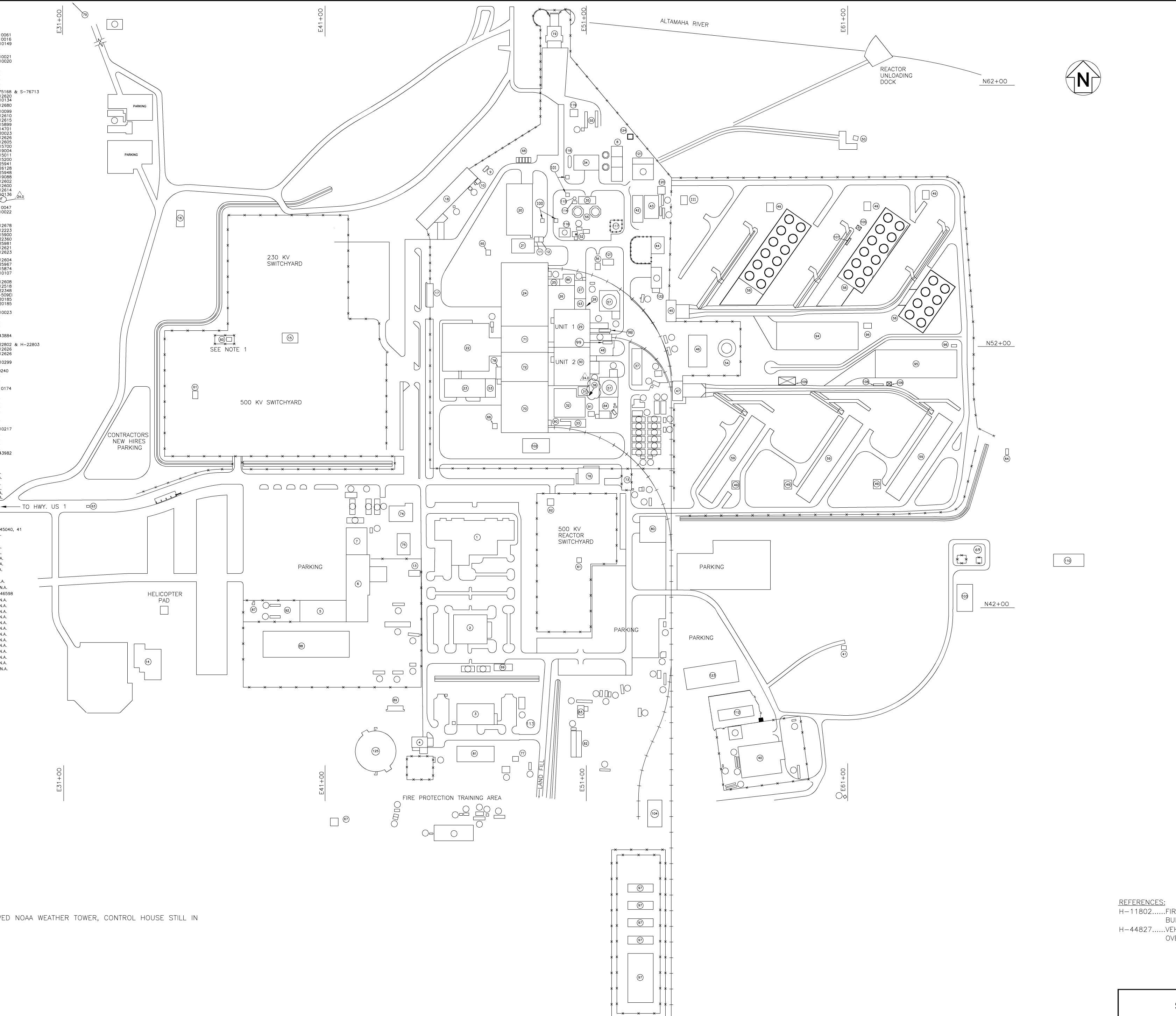
36.	FIRE EQUIPMENT BUILDING	H-12614
37.	RETROFIT (OUTAGE) SUPPORT BLDG.	H-10136
38.	UNIT 2 HVAC CHILLER BLDG (H.P.C.I) ROOF	24.0
39.	SPARE	
40.	LOW LEVEL RADWASTE BLDG.	E-10047
41.	BACKUP MET. TOWER	D-10022
42.	OUTAGE SUPPORT WAREHOUSE	N.A.
43.	WELD TEST BLDG.	N.A.
44.	REBUILD FACILITY	H-12678
45.	UNIT 1 CIRC. WATER PUMP	H-12223
46.	WASTE GAS TREATMENT BLDG.	H-15900
47.	UNIT 2 CIRC. WATER PUMP	H-22360
48.	HOT MACHINE SHOP	H-25981
49.	COOLING TOWER SUPPORT BLDG.	H-12621
50.	DISCHARGE STRUCTURE	H-12623
52.	AUXILIARY BOILERS	H-12604
53.	TECHNICAL SUPPORT CENTER	H-25967
54.	OFF GAS STACK	H-15874
55.	SEWAGE TREATMENT	H-10107
56.	FIRE PROTECTION TANKS	N.A.
57.	CONDENSATE STORAGE TANKS	H-12608
58.	UNIT 1 COOLING TOWER	H-12518
59.	UNIT 2 COOLING TOWER	H-22348
60.	SEE NOTE 1	19-509EI
61.	FIRE PROTECTION VALVE HOUSE	H-20185
62.	AUXILIARY CONTROL HOUSE	H-20185
63.	GATE 1	N.A.
64.	PUMP HOUSE	H-10023
65.	UNIT #1 VALVE HOUSE	N.A.
66.	UNIT #2 VALVE HOUSE	N.A.
67.	MET. TOWER	N.A.
68.	DIESEL FUEL STORAGE TANKS	N.A.
69.	HYDROGEN AND OXYGEN STORAGE FACILITY	H-43884
70.	UNIT #2 TURBINE BLDG.	H-22802 & H-22803
71.	UNIT #1 CONTROL BLDG.	H-12626
72.	UNIT #2 CONTROL BLDG.	H-12626
73.	SALLY PORT(GATE 31A)	N.A.
74.	COMPUTER BLDG.	H-10299
75.	DOCUMENT STORAGE BLDG.	N.A.
76.	SECURITY BLDG. (PESB)	H10240
77.	MICROWAVE TOWER	N.A.
78.	C.A.S. BLDG.	N.A.
79.	CORK AND HOOK BLDG.	N.A.
80.	OUTAGE & MODIFICATION(O&M) BLDG. INCLUDES MEDICAL FACILITY	E-10174
81.	TRAINING FLOW LOOP BLDG.	N.A.
82.	TRACTOR SHED	N.A.
83.	TIRE SHOP	N.A.
84.	FABRICATION SHOP	N.A.
86.	SUPPLY SHED	N.A.
87.	WASTE OIL FACILITY	N.A.
88.	CABLE STORAGE BLDG.	H-10217
89.	GAS PUMPS AND STORAGE TANKS	N.A.
90.	HEALTH PHYSICS DRESS OUT BLDG.	N.A.
91.	RADWASTE SOLIDIFICATION PADS	N.A.
92.	INVESTMENT RECOVERY AREA	N.A.
93.	UNIT 1 HVAC CHILLER BLDG. (H.P.C.I. ROOF)	H-43982
94.	UNIT 1 HELPER COOLING TOWER	N.A.
95.	UNIT 2 HELPER COOLING TOWER	N.A.
96.	COOLING TOWER ELECTRICAL BLDG	N.A.
97.	I.S.F.S.I. PADS	N.A.
98.	UNIT 1 LIQUID NITROGEN STORAGE	N.A
99.	UNIT 2 LIQUID NITROGEN STORAGE	N.A.
100.	UNIT 1 SERVICE WATER VALVE BOXES	N.A.
101.	UNIT 2 SERVICE WATER VALVE BOXES	N.A.
102.	MAINTENANCE SUPPORT BUILDING	H-45040, 41
103.	COOLING TOWER MAINTENANCE BLDG.	N.A.
104.	I.S.F.S.I. STORAGE BUILDING	N.A.
105.	UNIT 1 DECHLORINATION TREATMENT	N.A.
106.	UNIT 2 DECHLORINATION TREATMENT	N.A.
107.	UNIT 1 OVERFLOW WEIR	N.A.
108.	UNIT 2 OVERFLOW WEIR	N.A.
109.	UNIT 1 & 2 CIRC WATER SYSTEM CHLORINATION TREATMENT	N.A.
110.	SEALAND STORAGE FACILITY	N.A.
111.	UNIT 1 & 2 PSW CHEMICAL TREATMENT	N.A.
112.	LOW LEVEL RADWASTE FACILITY	H-46598
113.	PLANT ALERT NOTIFICATION SIREN	N.A.
114.	CHLORINE BUILDING	N.A.
115.	SANITARY WATER	N.A.
116.	BOILER	N.A.
117.	HYDROGEN STORAGE	N.A.
118.	NEUTRALIZATION TANK	N.A.
119.	S.T.P. LAB BUILDING	N.A.
120.	WELDING FABRICATION SHED	N.A.
121.	SHELTER	N.A.
122.	BATHROOM	N.A.
123.	SITE PROJECTS BUILDING	N.A.
124.	SECURITY POST	N.A.
125.	FLEX EQUIPMENT STORAGE BUILDING	N.A.



NOTES:
1 SITE OF REMOVED NOAA WEATHER TOWER, CONTROL HOUSE STILL IN PLACE.

REFERENCES:
H-11802......FIRE HAZARDS ANALYSIS GENERAL BUILDING SITE PLAN
H-44827......VEHICLE BARRIER SYSTEM OVERALL PLAN

ACAD2010 E10173

SOUTHERN COMPANY

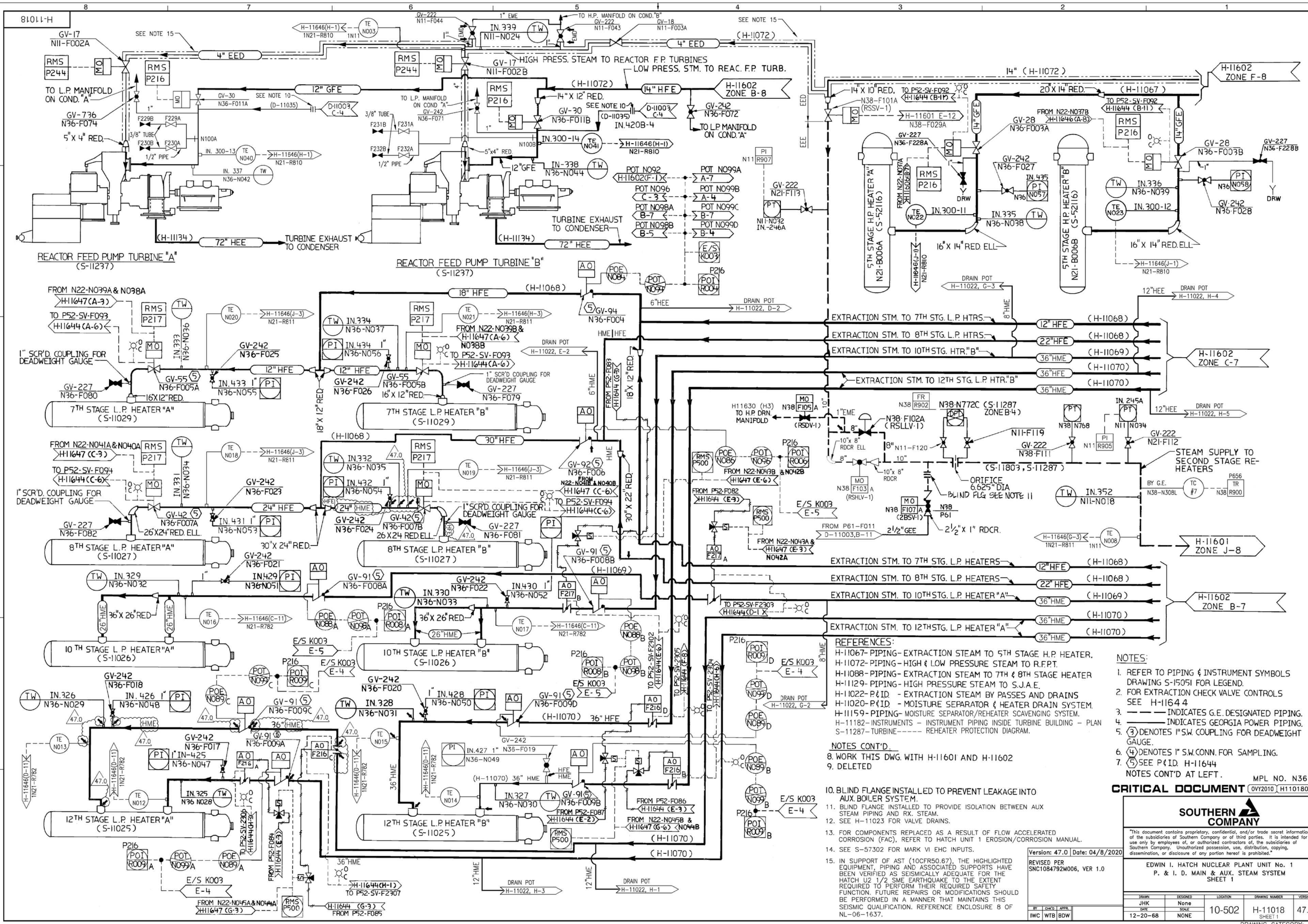
Version 24.0 | Date: 05/24/18

REVISED PER:
SNC864443C001, VER 1.0

BY	CHK'D	APPR.
HP	IWC	BDW

EDWIN I. HATCH NUCLEAR PLANT UNIT NO. 1 & 2
GENERAL BUILDING SITE PLAN

DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
RFT	None	10-502	E-10173	24.0
DATE: None	SCALE: 1"=100'			



REFERENCES:

H-11067- PIPING- EXTRACTION STEAM TO 5TH STAGE H.P. HEATER.
H-11072- PIPING- HIGH & LOW PRESSURE STEAM TO R.F.P.T.
H-11088- PIPING- EXTRACTION STEAM TO 7TH & 8TH STAGE HEATER
H-11129- PIPING- HIGH PRESSURE STEAM TO S.J.A.E.
H-11022- P&ID - EXTRACTION STEAM BY PASSES AND DRAINS
H-11020- P&ID - MOISTURE SEPARATOR & HEATER DRAIN SYSTEM.
H-11159- PIPING- MOISTURE SEPARATOR/REHEATER SCAVENGING SYSTEM.
H-11182- INSTRUMENTS - INSTRUMENT PIPING INSIDE TURBINE BUILDING - PLAN
S-11287- TURBINE----- REHEATER PROTECTION DIAGRAM.

NOTES:

1. REFER TO PIPING & INSTRUMENT SYMBOLS DRAWING S-15051 FOR LEGEND.
2. FOR EXTRACTION CHECK VALVE CONTROLS SEE H-11644
3. — — — INDICATES G.E. DESIGNATED PIPING.
4. ——— INDICATES GEORGIA POWER PIPING.
5. (3) DENOTES 1" S.W. COUPLING FOR DEADWEIGHT GAUGE.
6. (4) DENOTES 1" S.W. CONN. FOR SAMPLING.
7. (5) SEE P&ID. H-11644

NOTES CONT'D AT LEFT.

NOTES CONT'D.

8. WORK THIS DWG. WITH H-11601 AND H-11602
9. DELETED
10. BLIND FLANGE INSTALLED TO PREVENT LEAKAGE INTO AUX. BOILER SYSTEM.
11. BLIND FLANGE INSTALLED TO PROVIDE ISOLATION BETWEEN AUX STEAM PIPING AND RX. STEAM.
12. SEE H-11023 FOR VALVE DRAINS.
13. FOR COMPONENTS REPLACED AS A RESULT OF FLOW ACCELERATED CORROSION (FAC), REFER TO HATCH UNIT 1 EROSION/CORROSION MANUAL.
14. SEE S-57302 FOR MARK VI EHC INPUTS.
15. IN SUPPORT OF AST (10CFR50.67), THE HIGHLIGHTED EQUIPMENT, PIPING AND ASSOCIATED SUPPORTS HAVE BEEN VERIFIED AS SEISMICALLY ADEQUATE FOR THE HATCH U2 1/2 SME EARTHQUAKE TO THE EXTENT REQUIRED TO PERFORM THEIR REQUIRED SAFETY FUNCTION. FUTURE REPAIRS OR MODIFICATIONS SHOULD BE PERFORMED IN A MANNER THAT MAINTAINS THIS SEISMIC QUALIFICATION. REFERENCE ENCLOSURE 8 OF NL-06-1637.

MPL NO. N36

CRITICAL DOCUMENT 0VY2010 H1101801

Version: 47.0 Date: 04/8/2020

REVISED PER SNC1084792M006, VER 1.0

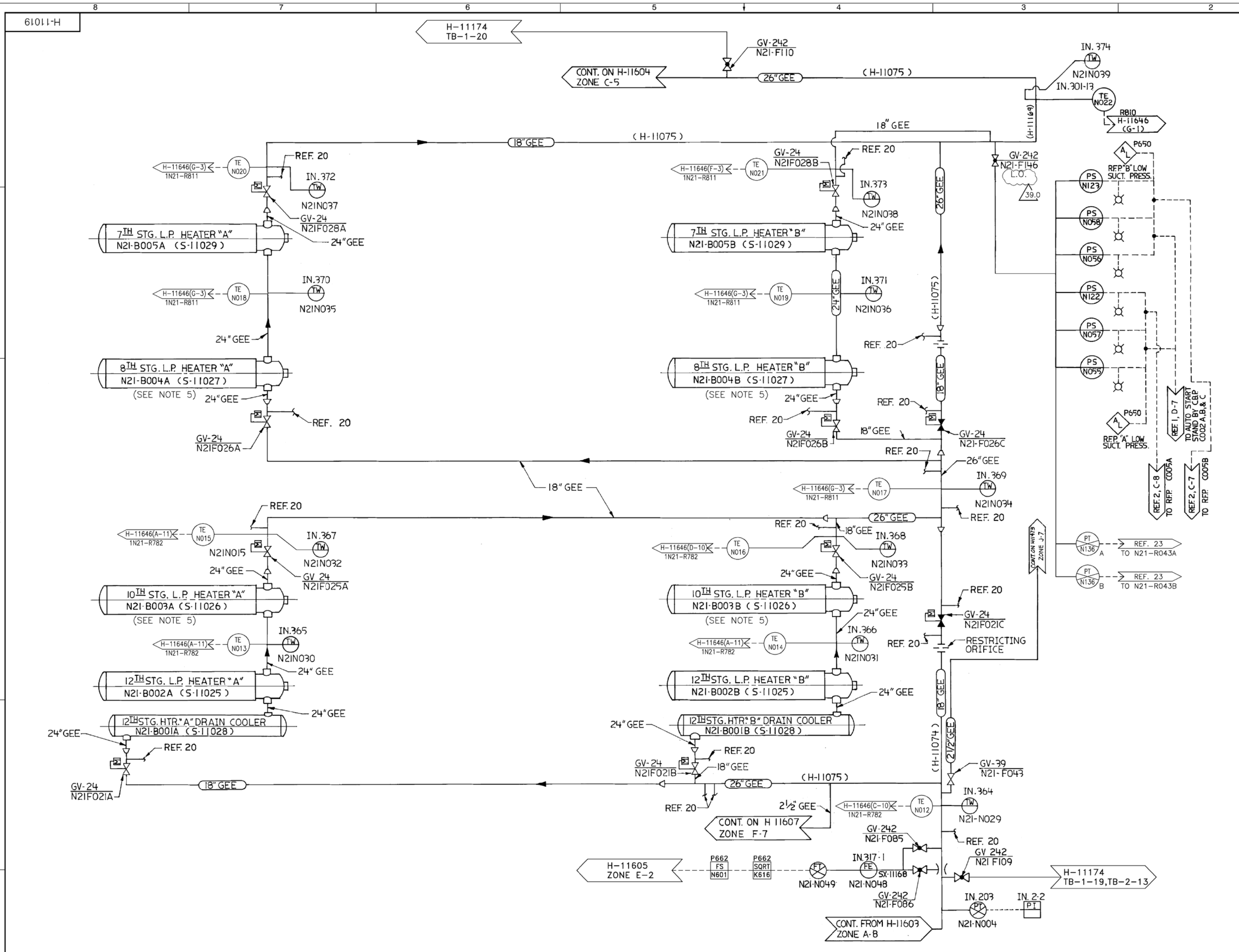
BY	CHK'D	APPR.
IWC	WTB	BDW

SOUTHERN COMPANY

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1
P. & I. D. MAIN & AUX. STEAM SYSTEM
SHEET 1

DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
JHK	None	10-502	H-11018 SHEET 1	47.0
DATE: 12-20-68	SCALE: NONE			

DRAWING CATEGORY: CRITICAL



NOTES:

1. WORK THIS DWG. WITH DWGS. H-11603, H-11604, & H-11605.
2. SEE H-11616 FOR VENTS & DRAINS.
3. REFER TO PIPING & INSTRUMENT SYMBOLS DWG S-15051 FOR LEGEND.
4. FOR COMPONENTS REPLACED AS A RESULT OF FLOW ACCELERATED CORROSION (FAC), REFER TO HATCH UNIT 1 EROSION/CORROSION MANUAL.
5. 1N21B003A, 1N21B003B, 1N21B004A & 1N21B004B TUBE SLEEVES INSTALLED.

REFERENCES:

1. H-11603 P.&I.D. COND. & FEEDWATER SYS. SHT. 2.
2. H-11604 P.&I.D. COND. & FEEDWATER SYS. SHT. 3.
3. H-11605 P.&I.D. COND. & FEEDWATER SYS. SHT. 4.
4. H-11148 SERVICE JET AIR EJECTION DRAIN TO CONDENSATE.
5. H-11066 PIPING: REACTOR FEED PUMP DISCH.
6. H-11076 PIPING: COND. MAKE-UP & STORAGE INSIDE TURBINE BLDG. & DEMINERALIZED WATER INSIDE BLDG.
7. H-11077 PIPING: COND. MAKE-UP & STORAGE OUTSIDE OF BLDG.
8. H-11073 PIPING: COND. CONDENSER TO GLAND SEAL STEAM CONDENSER.
9. H-11038 P.&I.D. DEMINERALIZED WATER.
10. H-11105 PIPING - RFP MINIMUM FLOW TO CONDENSER.
11. H-11362 PIPING MODIFICATION - COND. AND COND. BOOSTER PUMP MIN. FLOW.
12. D-11040 COND. BOOSTER PUMP MIN. FLOW SPRAY HEADER.
13. B-11020 RFP A & B MIN. FLOW SPRAY HEADER.
14. H-11074 PIPING: COND.- GLAND SEAL STEAM COND. TO TENTH STG. HEATER.
15. H-11075 PIPING: COND. TENTH STG. HTR. TO REACTOR FEED PUMP.
16. DELETED.
17. H-16408 DIGITAL INPUT SIGNALS TO THE ERF COMPUTER SYSTEM SHEET 6 OF 15.
18. H-11026 P&ID - CONDENSATE AND FEEDWATER BY-PASS, DRNS & VENTS SHT. 1.
19. H-11615 P&ID - CONDENSATE AND FEEDWATER BY-PASS, DRNS & VENTS SHT. 2
20. H-11616 P&ID - CONDENSATE AND FEEDWATER BY-PASS, DRNS & VENTS SHT. 3
21. H-11000 PIPING - CONDENSATE & FEEDWATER DRAINS & VENTS
22. H-11473 TURB. GEN. AUX. SYS. SCHEM. IED: CONTROL OIL & FLUID - SH. 2
23. S-14815 REACTOR FEED PUMP-PIPING DIAGRAM STUFFING BOX

CRITICAL DOCUMENT

MPL # N21

0VY2000 H11019

SOUTHERN COMPANY

Version: 39.0 Date: 10/21/14

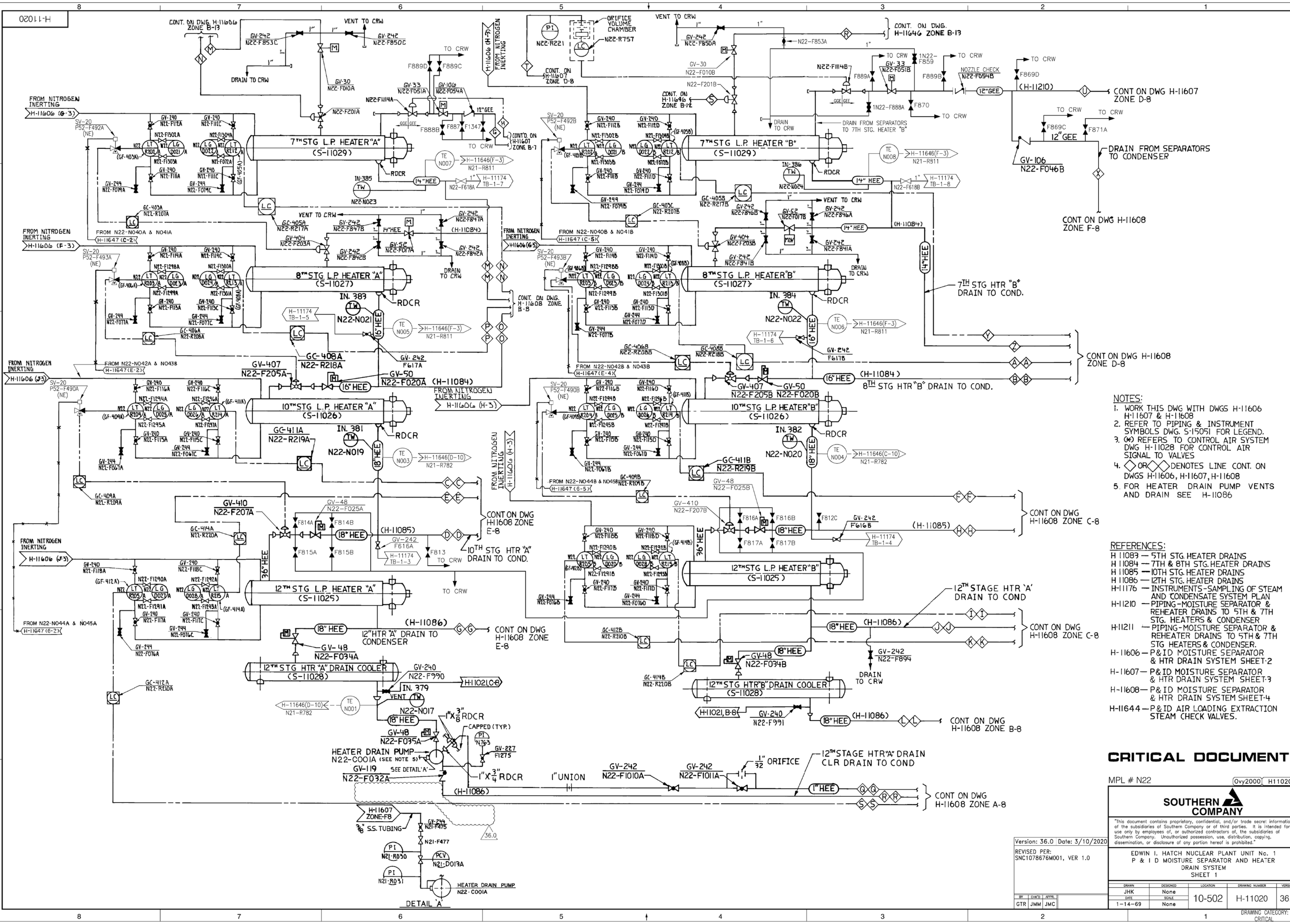
REVISED PER ABN-H03846, VER. 1.0

BY	CHK'D	APPR
DAB	MSM	JTL

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1
PIPING & INSTRUMENTATION DIAGRAM
CONDENSATE & FEEDWATER SYS. SHT. 1

DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
JHK	None	10-502	H-11019	39.0
DATE: 11-6-68	SCALE: NO SCALE			

DRAWING CATEGORY: CRITICAL



NOTES:
1. WORK THIS DWG WITH DWGS H-11606 H-11607 & H-11608
2. REFER TO PIPING & INSTRUMENT SYMBOLS DWG. S-15051 FOR LEGEND.
3. (✱) REFERS TO CONTROL AIR SYSTEM DWG H-11028 FOR CONTROL AIR SIGNAL TO VALVES
4. ◇ OR ◇◇ DENOTES LINE CONT. ON DWGS H-11606, H-11607, H-11608
5. FOR HEATER DRAIN PUMP VENTS AND DRAIN SEE H-11086

REFERENCES:
H 11083 — 5TH STG. HEATER DRAINS
H 11084 — 7TH & 8TH STG. HEATER DRAINS
H 11085 — 10TH STG. HEATER DRAINS
H 11086 — 12TH STG. HEATER DRAINS
H-11176 — INSTRUMENTS-SAMPLING OF STEAM AND CONDENSATE SYSTEM PLAN
H-11210 — PIPING-MOISTURE SEPARATOR & REHEATER DRAINS TO 5TH & 7TH STG. HEATERS & CONDENSER
H-11211 — PIPING-MOISTURE SEPARATOR & REHEATER DRAINS TO 5TH & 7TH STG HEATERS & CONDENSER.
H-11606 — P&ID MOISTURE SEPARATOR & HTR DRAIN SYSTEM SHEET-2
H-11607 — P&ID MOISTURE SEPARATOR & HTR DRAIN SYSTEM SHEET-3
H-11608 — P&ID MOISTURE SEPARATOR & HTR DRAIN SYSTEM SHEET-4
H-11644 — P&ID AIR LOADING EXTRACTION STEAM CHECK VALVES.

CRITICAL DOCUMENT

MPL # N22 (Ovy2000) (H11020)

SOUTHERN COMPANY

Version: 36.0 Date: 3/10/2020

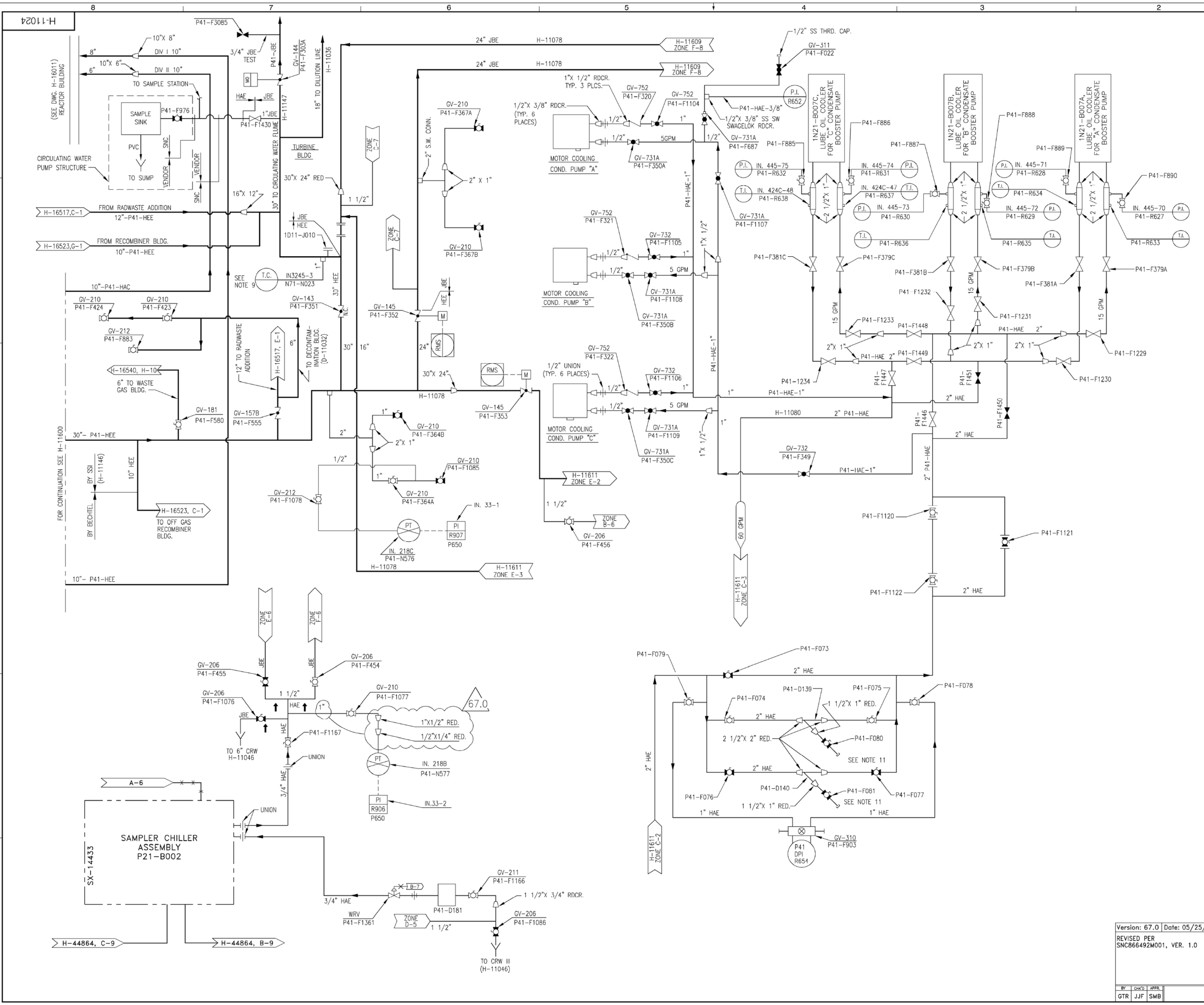
REVISED PER: SNC1078676M001, VER 1.0

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1
P & I D MOISTURE SEPARATOR AND HEATER DRAIN SYSTEM
SHEET 1

BY	CHK'D	APPR.	DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
GTR	JMM	JMC	JHK	None	10-502	H-11020	36.0
			DATE 1-14-69	SCALE None			

DRAWING CATEGORY: CRITICAL

H-11024



NOTES:

1. ALL IN. 324E NO'S. TO BE USED WITH INST. NO. P41-N535/IN. 324F.
2. ALL IN. 324G NO'S. TO BE USED WITH INST. NO. P41-N544/IN. 324H.
3. ALL IN. 324K NO'S. TO BE USED WITH INST. NO. P41-N551/IN. 324L.
4. ALL IN. 324M NO'S. TO BE USED WITH INST. NO. P41-N566/IN. 324N.
5. ALL IN. 324P NO'S. TO BE USED WITH INST. NO. P41-N567/IN. 324R.
6. WORK THIS DWG WITH DWG'S H-11609, H-11610 AND H-11611.
7. MPL # FOR TRAVELING WATER SCREENS HAS BEEN CHANGED FROM W33-E001A & B TO W33-E003A & B.
8. FIELD MAY SUBSTITUTE VALVE NV-603 IN LIEU OF GV-299A AT THESE LOCATIONS.
9. 1N71-N023 IS NOT OPERATIONAL AND HAS BEEN ABANDONED IN PLACE PER MDC 93-5006.
10. MIN FLOW VALVES 1P41-F208A-D ARE INSTALLED SUCH THAT FLOW ASSISTS THE VALVE CLOSED.
11. DRAIN HOSE INSTALLED AND CONTROLLED IN ACCORDANCE WITH 34GO-OPS-Ø3Ø-1

REFERENCES:

1. H-16409 – X75-1010 DIGITAL INPUT SIGNALS TO THE ERF COMPUTER SYSTEM IED SHEET 7 OF 15
2. H-11078 – SERVICE WATER – TURBINE BLDG. "AREA-A"
3. H-11079 – SERVICE WATER – TURBINE BLDG. "AREA-B"
4. H-11080 – SERVICE WATER – TURBINE BLDG. "AREA-C"
5. H-11081 – SERVICE WATER – CONTROL BLDG.
6. H-11204 – SERVICE WATER – DIESEL GENERATOR BLDG.
7. H-11206 – SERVICE WATER – R.F.P. TURBINE OIL COOLERS.
8. H-11142 – SERVICE WATER – RIVER INTAKE STRUCTURE.
9. H-11087 – SERVICE WATER – CONTROL BLDG. AIR COND.
10. H-11140 – PIPING–RADWASTE DILUTION.
11. H-11146 – SERVICE WATER – INTAKE STRUCTURE TO BLDG.
12. H-11207 – PIPING – H.P. AIR COMPRESSORS.
13. H-11208 – SERVICE WATER – HYDROGEN COOLER.
14. H-11147 – S.W.–TURBINE BLDG. TO CIRC. WATER FLUME.
15. H-11331 – CONTROL BLDG. HVAC SW SYS.
16. H-11332 – CONTROL BLDG. HVAC SW SYS.
17. H-11108 – S.W. @ HVAC CHILLERS.
18. H-11214 – S.W. TO HVAC CHILLERS.
19. H-11609 – SERVICE WATER P&ID SHT. 2.
20. H-11610 – SERVICE WATER P&ID SHT. 3.
21. H-11611 – SERVICE WATER P&ID SHT. 4.
22. D-11001 – SERVICE WATER INTAKE STRUCT. P&ID SH 1
23. H-11600 – SERVICE WATER DIESEL GEN. P&ID SHT. 2
24. H-16326 – TURBINE BLDG CHILLED P&ID SHT. 1
25. H-16011 – REACTOR BLDG. SERVICE WATER P&ID
26. H-11203 – INSTRUMENT INSTALLATION ON SERVICE WATER UNIT 1
27. H-11212 – PIPING–INTAKE STRUCT.–SECTIONS & DETAILS
28. SX-14433 – SAMPLE CHILLER
29. SX-29285 – CHILLER/ANALYZERS MANUAL
30. H-47279 – DIV II 10" PSW PIPING TO REACTOR BLDG SHT. 1 OF 2
31. H-47283 – DIV II 10" PSW PIPING TO REACTOR BLDG SHT. 2 OF 2

CRITICAL DOCUMENT

MPL NO. P41 ACAD2010 H11024

SOUTHERN COMPANY

Version: 67.0 Date: 05/25/17

REVISED PER SNC866492M001, VER. 1.0

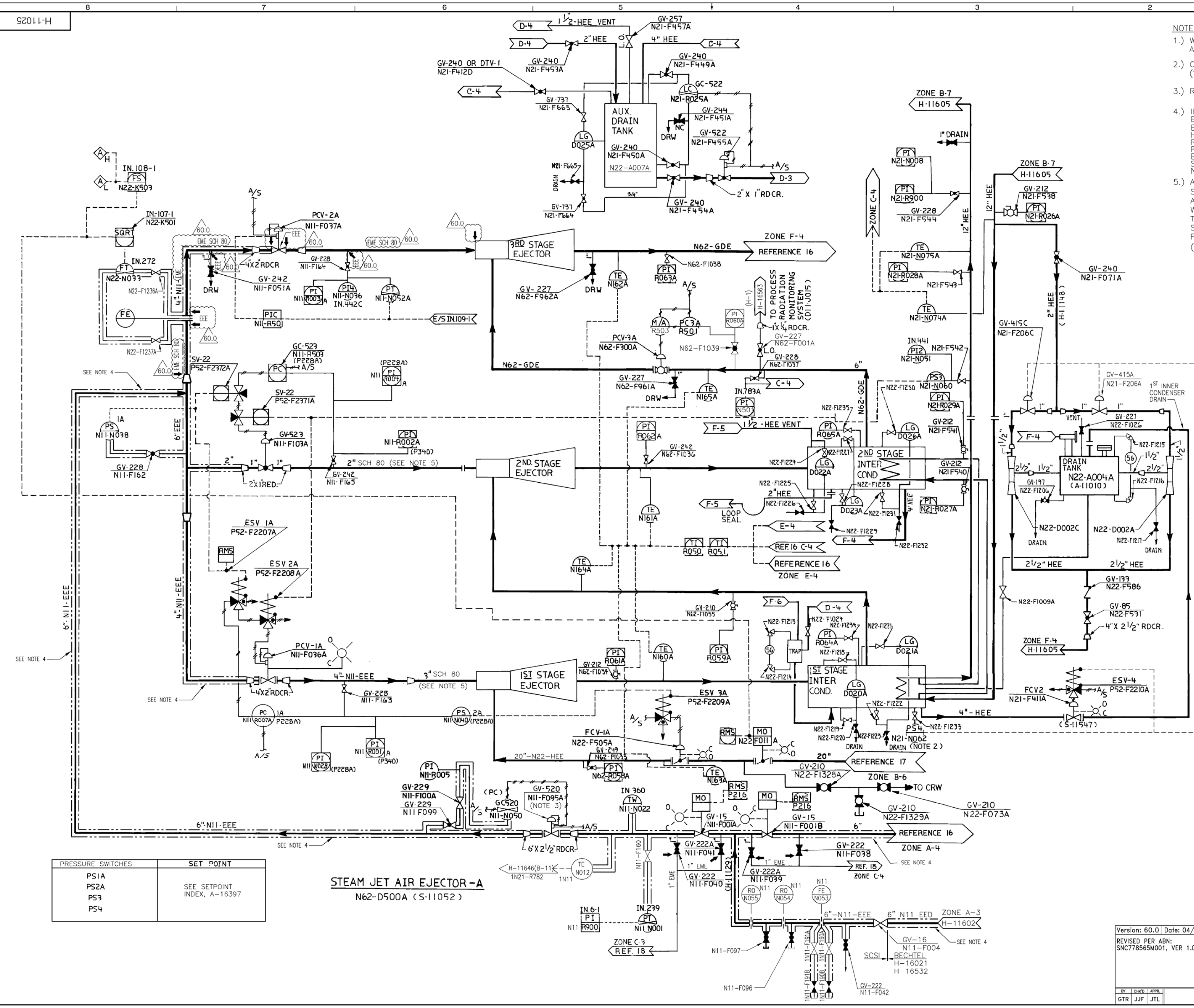
BY	CHK'D	APPR.
GTR	JJF	SMB

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1
P. & I. D. SERVICE WATER PIPING
SHEET 1

DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
GLB	GLB	10-502	H-11024	67.0
DATE: 5-1-73	SCALE: None			

DRAWING CATEGORY: CRITICAL

H-11025



STEAM JET AIR EJECTOR-A
N62-D500A (S-11052)

NOTES:

1.) WORK THIS DRAWING WITH DWG. H-11612 AND H-11613.

2.) CONTROLLED FROM RACK H21-P228 (PS-4) (S-11602, S-11332).

3.) RESTRICTED TRIM REMOVED FROM 1N11-F095A.

4.) IN SUPPORT OF AST (10CFR50.67), THE HIGHLIGHTED EQUIPMENT, PIPING AND ASSOCIATED SUPPORTS HAVE BEEN VERIFIED AS SEISMICALLY ADEQUATE FOR THE HATCH U2 1/2 SME EARTHQUAKE TO THE EXTENT REQUIRED TO PERFORM THEIR REQUIRED SAFETY FUNCTION. FUTURE REPAIRS OR MODIFICATIONS SHOULD BE PERFORMED IN A MANNER THAT MAINTAINS THIS SEISMIC QUALIFICATION. REFERENCE ENCLOSURE 8 OF NL-06-1637.

5.) AS FOUND CONDITIONS WITH UT AND RT INDICATE SCH 80 PIPING ON LESS THAN 4" PIPING IN THE AREAS INDICATED, RATHER THAN THE SCH 160 THAT WOULD BE REQUIRED BY THE EEE PIPING CLASS THAT WAS APPLIED TO THE FOSTER-WHEELER SKID SOMETIME IN THE PAST. THIS IS FULLY ACCEPTABLE FOR THE PRESSURES AND CONDITIONS IN THE SKID (ABN-H03525).

REFERENCES

1.) H-16021 — OFFGAS SYSTEM P&ID.
2.) H-16532 — OFFGAS SYSTEM P&ID.
3.) S-19040 — OFFGAS SYSTEM ~ DESIGN SPEC.
4.) H-16563 — PROCESS RADIATION MONITORING SYSTEM I.E.D. ~ SHT. 1
5.) H-16564 — PROCESS RADIATION MONITORING SYSTEM I.E.D. ~ SHT. 2
6.) SX-11673 — FOSTER WHEELER REMOTE CONTROL DIAGRAM
7.) S-11334 — FOSTER WHEELER EJECTOR DISCH. GAS FLOW METER READING
8.) H-11088 — PIPING ~ CONDENSER VACUUM SYSTEM SUCTION
9.) H-11089 — PIPING ~ OFFGAS INSIDE BUILDING
10.) H-11148 — PIPING ~ S.J.A.E. DRAIN TO CONDENSER
11.) H-11129 — PIPING ~ HIGH PRESSURE STEAM TO SJAE
12.) H-11018 — P&ID ~ MAIN AND AUXILIARY STEAM SYSTEM
13.) H-11605 — P&ID ~ CONDENSATE & FEEDWATER SYSTEM ~ SHT. 4
14.) H-11028 — P&ID ~ CONTROL AIR
15.) H-11027 — PIPING DIAGRAM ~ H.P. SERVICE AIR PIPING
16.) H-11612 — P&ID ~ CONDENSER VACUUM AND OFFGAS SYSTEM SH. 2
17.) H-11613 — P&ID CONDENSER VACUUM AND OFFGAS SYSTEM SH. 3
18.) H-11022 — P&ID ~ EXTRACTION STEAM BY-PASS AND DRAINS
19.) H-11352 — TEMP. INSTRUMENTATION FOR S.J.A.E.
20.) H-11615 — P&ID ~ CONDENSATE AND FEEDWATER BY-PASS, DRAINS AND VENTS SHT. 2

PRESSURE SWITCHES	SET POINT
PS1A PS2A PS3 PS4	SEE SETPOINT INDEX, A-16397

CRITICAL DOCUMENT

MPL NO. N62 — OVY2010 H11025

SOUTHERN COMPANY

Version: 60.0 | Date: 04/06/16

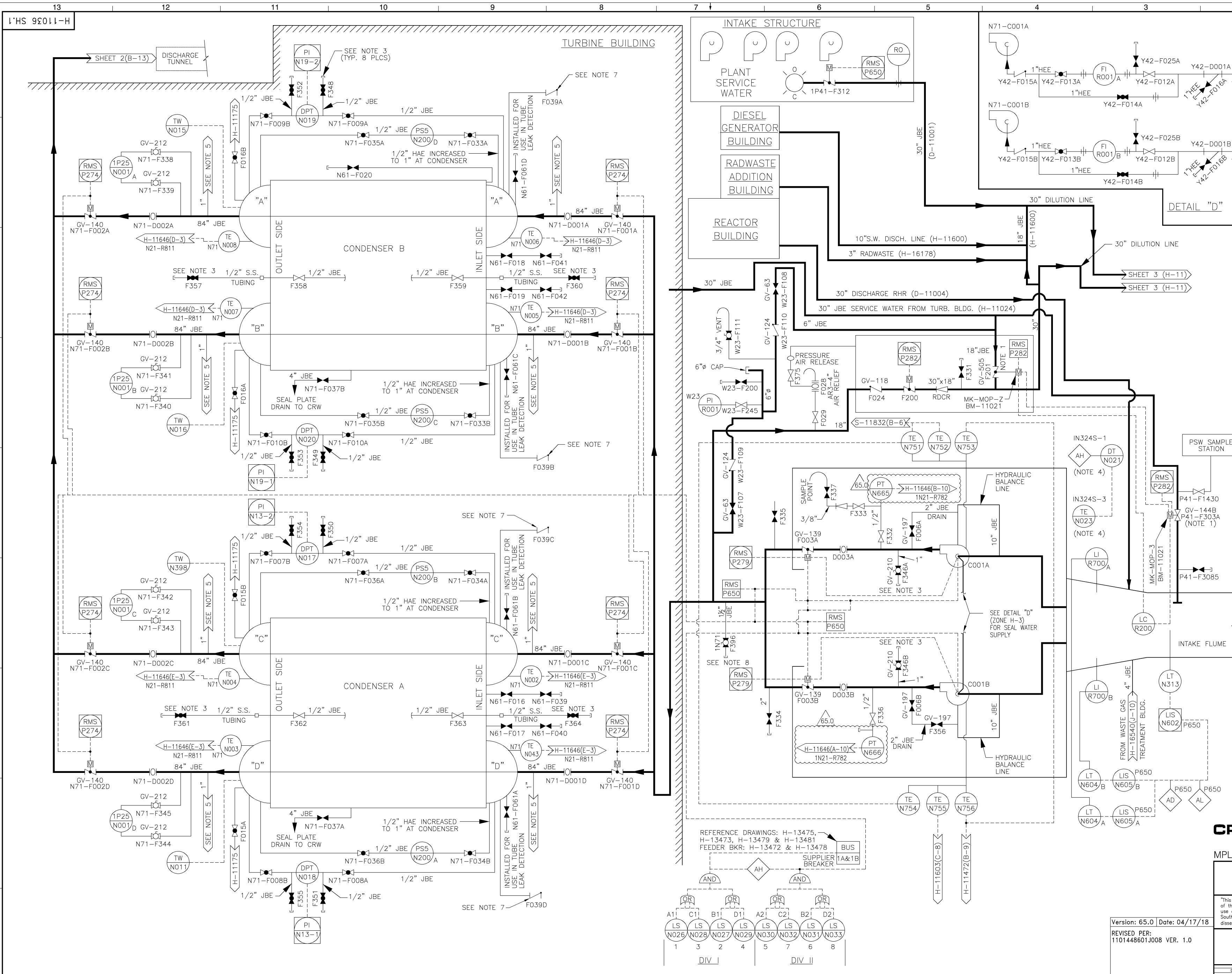
REVISED PER ABN: SNC778565M001, VER 1.0

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1
P & I. D. — CONDENSER VACUUM AND OFFGAS SYSTEM SH. 1

BY	CHK'D	APPR.
GTR	JJF	JTL

DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
WRB	None	10-502	H-11025	60.0
DATE 8-9-70	SCALE None			

DRAWING CATEGORY: CRITICAL



NOTES:

1. DURING NORMAL OPERATION, VALVE N71-F201 IS CLOSED & VALVE P41-F303A IS THROTTLED OPEN TO IT'S DESIRED POSITION & POWER IS REMOVED. IF VALVE P41-F303A IS TO BE CLOSED, VALVE N71-F201 MUST BE FULLY OPEN PRIOR TO CLOSING P41-F303A & THEN POWER REMOVED FROM BOTH VALVES.
2. ALL MPL NUMBERS ARE PRECEDED BY N71 UNLESS NOTED OTHERWISE. 65.0
3. INSTRUMENT TEST VALVE CONNECTION FOR CONDENSER PERFORMANCE MONITORING.
4. INSTRUMENTS 1N71-N021, & N023 ARE NOT OPERATIONAL. THESE INSTRUMENTS HAVE BEEN ABANDONED IN PLACE PER MDC 93-5006-001.
5. SEE DRAWING H-11174 FOR SAMPLE POINTS TB-2-8 THROUGH TB-2-11 AND TB-3-1 THROUGH TB-3-4.
6. DELETED
7. THIS COMPONENT IS A WATERBOX VACUUM BREAKER CHECK VALVE.
8. BLOWDOWN ASSEMBLY ON ACCESS SHAFT COVER PLATE. REFER TO H-12190/H-12229 FOR LOCATION & DETAIL.

OPERATION MODES:

SEE PRE-OPERATIONAL TEST SPECIFICATION A-11035.

OPERATING CONDITIONS	VALVES NOS.		
	F303A	F200	F201
T.B. SVC. WATER TEMP. LOWER THAN CIRC. WATER TEMP.	MODS.	CLOSE	MODS
T.B. SVC. WATER TEMP HOTTER THAN CIRC. WATER TEMP.	OPEN	OPEN	CLOSE
CHLORINATION	MODS.	CLOSE	MODS.
CONDUCTIVITY (HIGH)	OPEN	OPEN	CLOSE
FLUME (LOW LEVEL)	MODS.	CLOSE	MODS.
FLUME (HIGH LEVEL)	CLOSE	OPEN	OPEN

CRITICAL DOCUMENT

MPL N0. N71/N61

ACAD2010 H1103601

SOUTHERN COMPANY

Version: 65.0 Date: 04/17/18

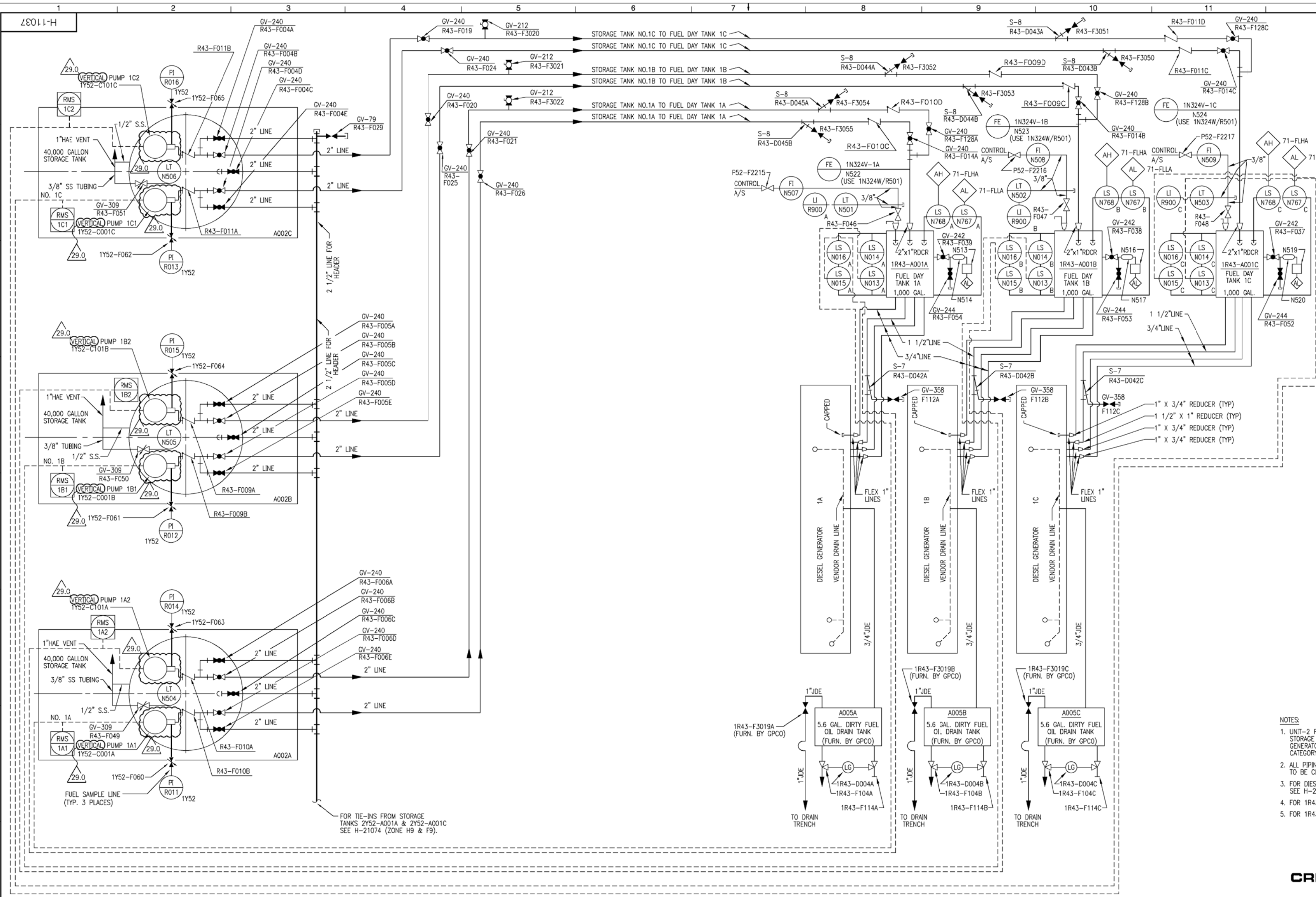
REVISED PER:
1101448601J008 VER. 1.0

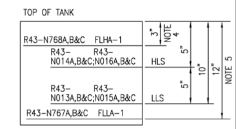
EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1
P & ID CIRCULATING WATER SYSTEM
SHEET 1

BY	CHK'D	APPR.
GTR	AAA	BKM

DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
J. ADAMS	None	10-502	H-11036 SH.1	65.0
DATE: 4-9-73	SCALE: None			

DWG. CATEGORY CRITICAL





SET POINTS FOR DAY TANKS (TYPICAL 3 PLACES)

NOTES:

1. UNIT-2 PIPING FROM THE FUEL OIL STORAGE TANKS TO THE DIESEL GENERATOR SKID IS SEISMIC CATEGORY I.
2. ALL PIPING THIS DRAWING FOR UNIT 1 TO BE CLASS R43-HGE.
3. FOR DIESEL GENERATOR 2A & 2C PIPING SEE H-21074.
4. FOR 1R43-N768A, THIS DIMENSION IS 3 1/2".
5. FOR 1R43-N767A, THIS DIMENSION IS 13 1/2".

CRITICAL DOCUMENT

MPL No. R43 ACAD2000 H11037

SOUTHERN COMPANY

Version: 29.0 | Date: 6-26-12

REVISED PER ABN-H01523, VER.1.0

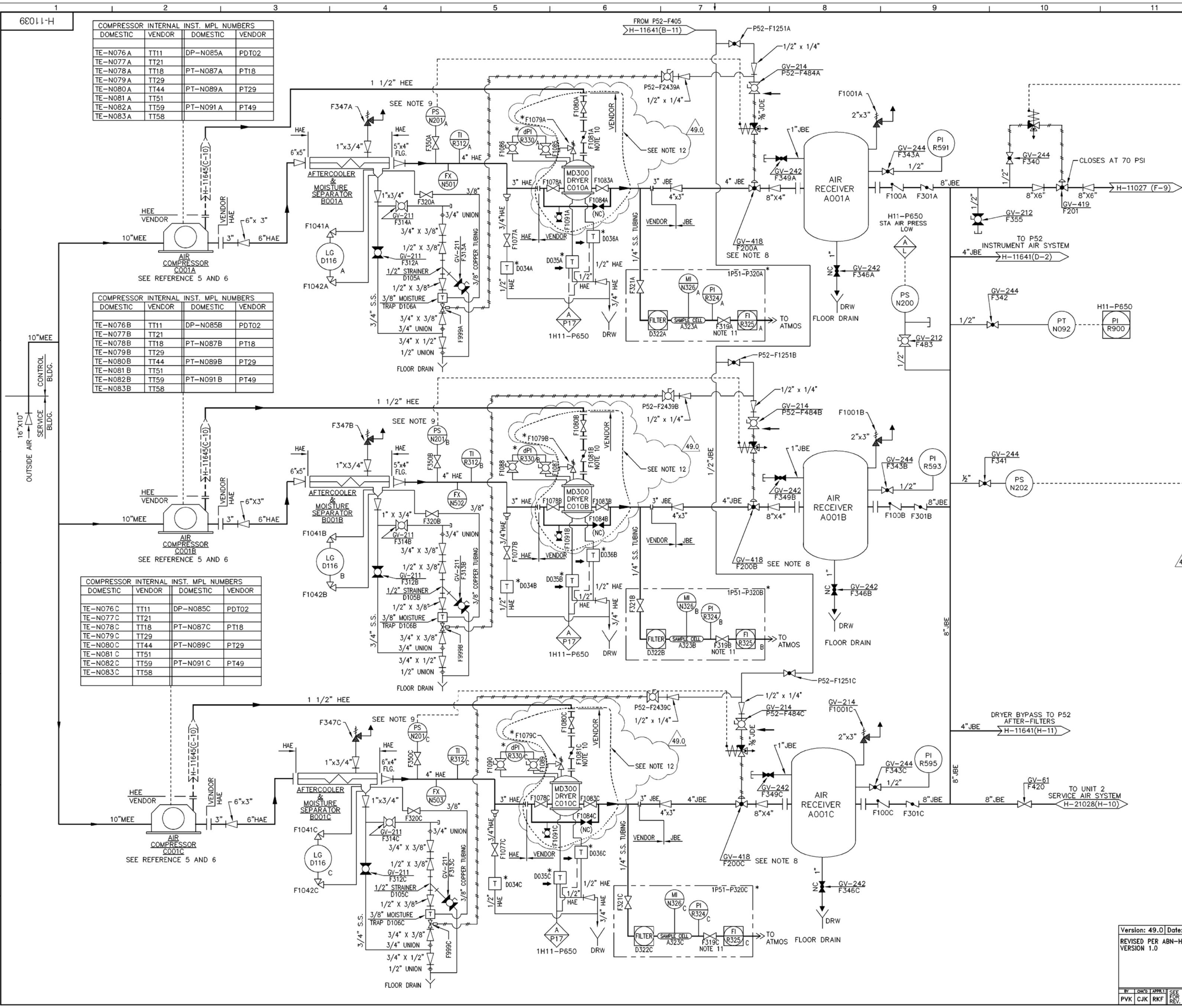
EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1
P&ID FUEL OIL DIESEL OIL SYSTEM

BY	CHK'D	APPR'D	
BgT	RKF	AAN	SEE MICROFILM FOR PREVIOUS REV. SIGNATURES.

DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
JHA	JHA	10-502	H-11037	29.0
DATE 6-4-71	SCALE None			

DWG CATEGORY: CRITICAL

H-11039



COMPRESSOR INTERNAL INST. MPL NUMBERS			
DOMESTIC	VENDOR	DOMESTIC	VENDOR
TE-N076A	TT11	DP-N085A	PDT02
TE-N077A	TT21		
TE-N078A	TT18	PT-N087A	PT18
TE-N079A	TT29		
TE-N080A	TT44	PT-N089A	PT29
TE-N081A	TT51		
TE-N082A	TT59	PT-N091A	PT49
TE-N083A	TT58		

COMPRESSOR INTERNAL INST. MPL NUMBERS			
DOMESTIC	VENDOR	DOMESTIC	VENDOR
TE-N076B	TT11	DP-N085B	PDT02
TE-N077B	TT21		
TE-N078B	TT18	PT-N087B	PT18
TE-N079B	TT29		
TE-N080B	TT44	PT-N089B	PT29
TE-N081B	TT51		
TE-N082B	TT59	PT-N091B	PT49
TE-N083B	TT58		

COMPRESSOR INTERNAL INST. MPL NUMBERS			
DOMESTIC	VENDOR	DOMESTIC	VENDOR
TE-N076C	TT11	DP-N085C	PDT02
TE-N077C	TT21		
TE-N078C	TT18	PT-N087C	PT18
TE-N079C	TT29		
TE-N080C	TT44	PT-N089C	PT29
TE-N081C	TT51		
TE-N082C	TT59	PT-N091C	PT49
TE-N083C	TT58		

NOTES:

1. ALL EQUIPMENT AND INSTRUMENTS PREFIXED BY MPL NO. P51 UNLESS OTHERWISE NOTED.
2. ANY ADDITIONAL HIGH POINT VENTS & LOW POINT DRAINS TO BE ADDED BY FIELD AS NECESSARY.
3. ALL DRAINS ARE 1" UNLESS SPECIFIED OTHERWISE.
4. FOR LOCATION AND IDENTIFICATION OF INSTRUMENTS SEE INSTRUMENT DATA SHEET LISTED IN MPL FOR EACH INSTRUMENT.
5. ALL SERVICE AIR CONNECTIONS FROM HEADER TO HOSE CONN. AND VALVES TO BE 1" UNLESS SPECIFIED OTHERWISE.
6. INSTRUMENT AIR(P52) RELATED COMPONENTS ARE ON H-11641.
7. CONNECT THIS INSTRUMENT TO INDICATING FLOW METER IN.324-D/P51-R501.
8. F200A,B,C VALVES OPEN AT 100 PSI AND CLOSE AT 80 PSI.
9. PRESSURE SWITCHES N201A,B,C OPEN AT 80 PSI AND CLOSE AT 100 PSI.
10. THERE IS NO HANDWHEEL FOR VALVES F1081A, B & C. THESE ARE MANUAL CONTROL VALVES USED FOR INITIAL SETUP OF THE DRYER EQUIPMENT.
11. SAMPLE VALVES F319A, B & C ARE NORMALLY THROTTLED TO APPROXIMATELY 2 SCFH.

49.0

12. OUTLINED COMPONENTS ARE INTEGRAL TO DRYER ASSEMBLY.

REFERENCES:

1. H-11614.........PIPING DIAGRAM INST AIR TO HVAC & H.P.SERVICE AIR PIPING-SHT.2
2. H-21028.........CONTROL BUILDING SERVICE AIR SYSTEM-P&ID SHT.1
3. H-11641.........PIPING & INSTRUMENTATION DIAGRAM SERVICE AIR AT HIGH PRESSURE AIR COMPRESSOR-SHEET 2
4. H-11027.........PIPING & INSTRUMENTATION DIAGRAM INSTRUMENT AIR TO HVAC & H.P. SERVICE AIR PIPING-SHEET 1
5. H-11642.........STATION SERVICE AIR COMPRESSORS-CLOSED LOOP COOLING SYSTEM P&ID
6. H-11645.........P&ID-STATION SERVICE AIR COMPRESSOR INTERNALS

CRITICAL DOCUMENT

MPL # P51-1010

Acad2K H11039

SOUTHERN COMPANY

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1

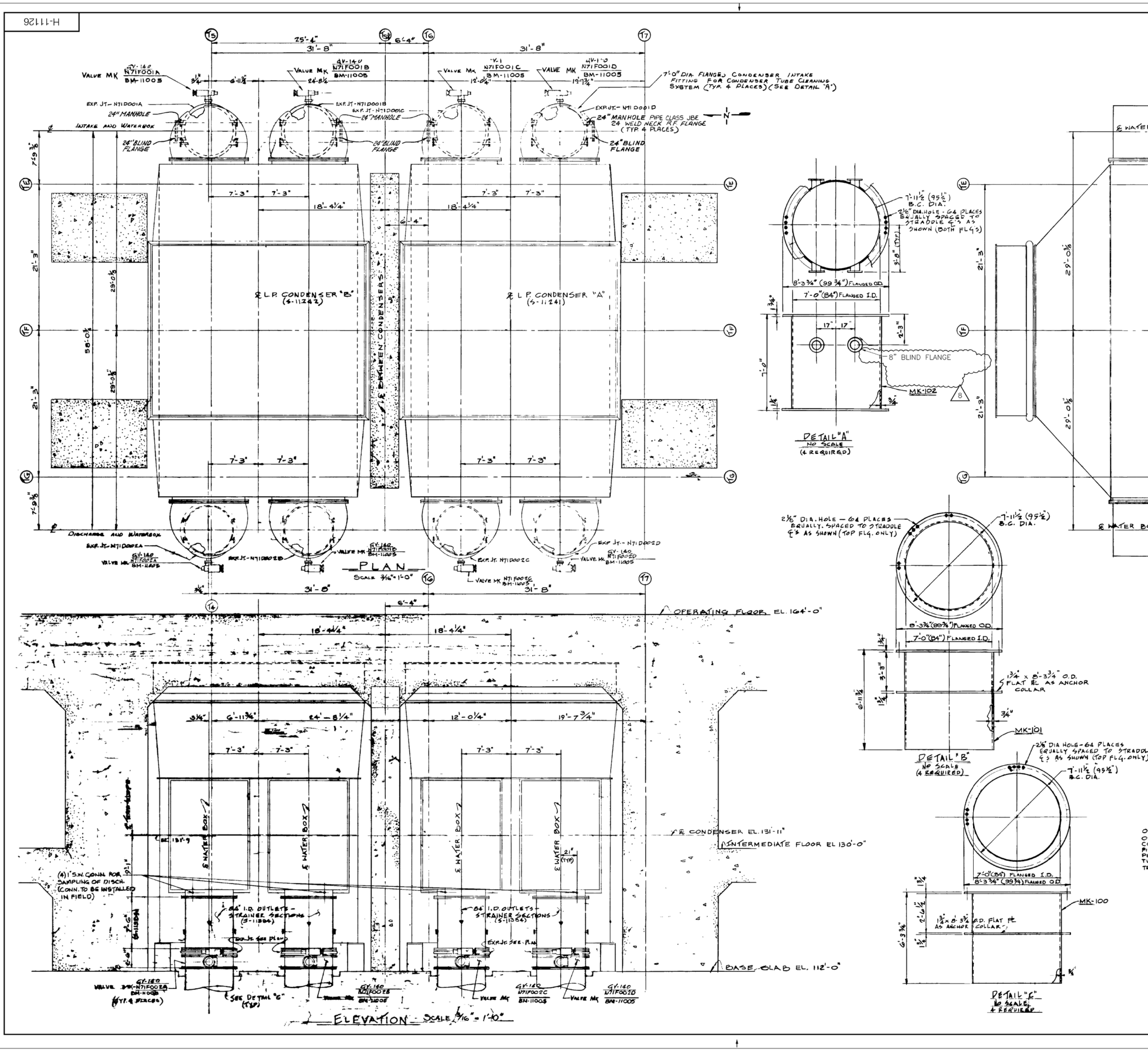
PIPING & INSTRUMENTATION DIAGRAM
SERVICE AIR AT HIGH PRESSURE
AIR COMPRESSORS

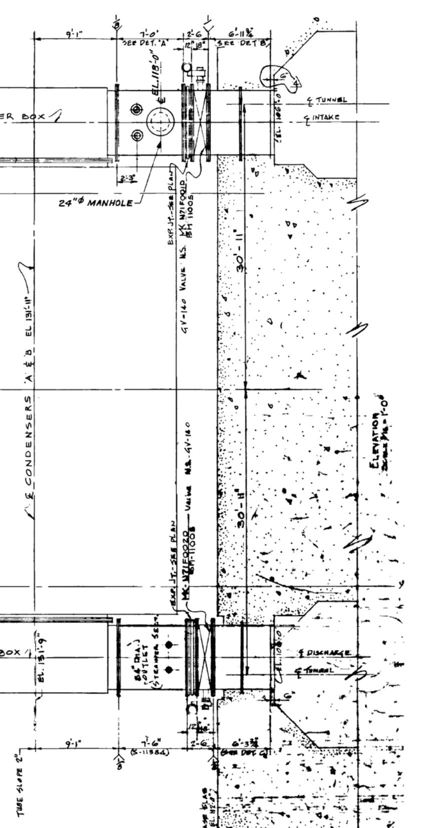
Version: 49.0	Date: 8/21/13
REVISED PER ABN-H03321, VERSION 1.0	

BY	CHK'D	APPR.1	
PVK	CJK	RKF	SEE MICROFILM FOR PREVIOUS REV. SIGNATURES.

DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
CTW	None	10-502	H-11039	49.0
DATE	SCALE			
5-11-71	None			

DRAWING CATEGORY: CRITICAL





NOTES

PIPING — SEE GENERAL PIPING SPECIFICATIONS INQUIRY No. SS-6909-1. ALL PIPING ON THIS DRAWING TO BE CLASS N71-JBE, AND IS TO BE FURNISHED BY PURCHASER AND INSTALLED BY PIPING CONTRACTOR.

VALVES — ALL VALVES TO BE FURNISHED BY PURCHASER AND INSTALLED BY PIPING CONTRACTOR. ALL VALVES THIS DWG. TO HAVE MPL No. N71. SEE ~~VALVE~~ BILL OF MATERIAL BM-11005

BOLTS & GASKETS — ALL NECESSARY BOLTS & GASKETS TO BE FURNISHED BY PIPING CONTRACTOR.

INSULATION — NONE.

REFERENCES

OUTLINE CONDENSER "A" —	S-11241
OUTLINE CONDENSER "B" —	S-11242
COND TUBE CLEANING SYSTEM & STRAINER SECTION	S-11384
PIPING-CONDENSER TUBE CLEANING SYSTEM - COND. "A" —	H-11127
PIPING-CONDENSER TUBE CLEANING SYSTEM - COND. "B" —	H-11128
TURB. BLDG. - CONC. GEN. ARRANGEMENT - BASE SLAB EL. 112'-0" —	H-12010
TRITON XR-70 BUTTERFLY VALVE	S-[illegible]

ACACOVY A11126

SOUTHERN COMPANY

Revision: 8 | Date: 11-10-03

REVISED PER ABN 02-0164

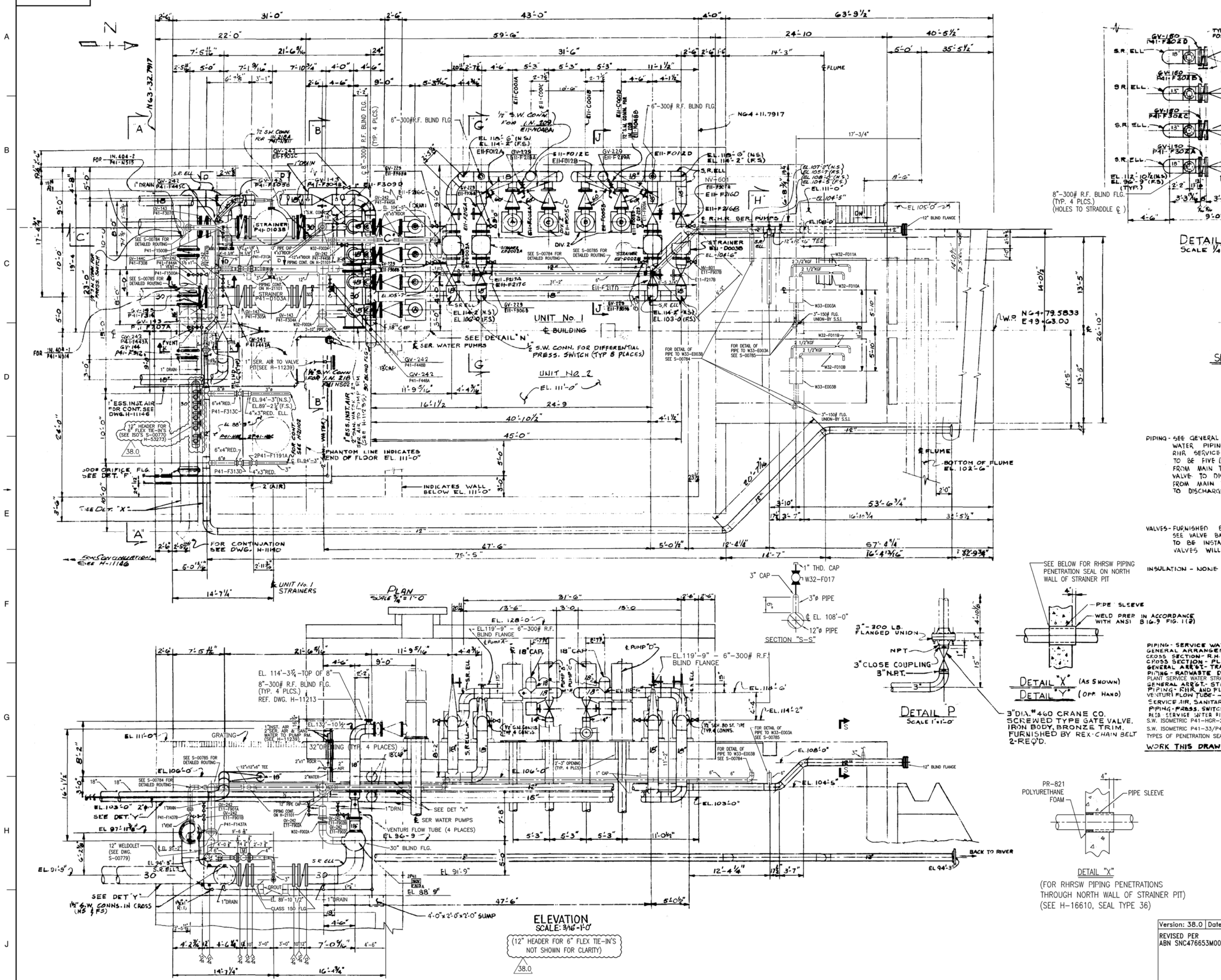
BY	CHK'D	APPR.1	
KMH	JWM	ASK	SEE MICROFILM FOR PREVIOUS REV. SIGNATURES.

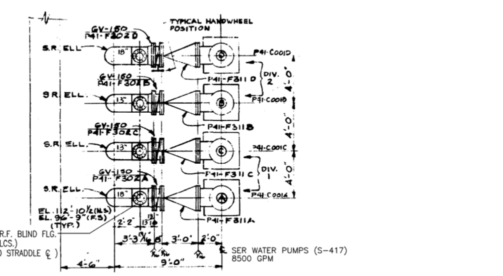
EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1

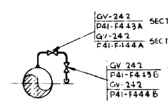
PIPING CIRCULATING WATER

DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	REVISION
None	None	10-502	H-11126	8
DATE	SCALE			
None	None			

H-11142







SECTION 'K-K' & 'L-L'

SCALE - NONE

GENERAL NOTES

PIPING - SEE GENERAL PIPING SPECIFICATIONS INQUIRY NO 55-6909-1. SERVICE WATER PIPING TO BE CLASS F41-HEE SEISMIC CLASS I. RHR SERVICE WATER PIPING TO BE CLASS E11-GEE. ALL BEND RADII TO BE FIVE (5) TIMES PIPE DIAMETER. SERVICE WATER DRAIN PIPING FROM MAIN THRU ROOT VALVE IS TO BE CLASS P41-HEE. FROM ROOT VALVE TO DISCHARGE USE CLASS P41-JBE. R.H.R. SERVICE WATER PIPING FROM MAIN THRU ROOT VALVE IS TO BE CLASS E11-GEE. FROM ROOT VALVE TO DISCHARGE USE CLASS P41-JBE.

VALVES - FURNISHED BY PURCHASER AND INSTALLED BY PIPING CONTRACTOR SEE VALVE BM-11005. ALL BUTTERFLY VALVES IN HORIZONTAL PIPING TO BE INSTALLED WITH STEM VERTICAL. ALL 1" DRAIN AND VENT VALVES WILL HAVE MPL NO. E11 OR P41.

INSULATION - NONE

REFERENCES

PIPING - SERVICE WATER - PUMP STRUCTURE TO BUILDING	H-11146
GENERAL ARRANGEMENT - OUTDOOR CONCRETE INTAKE STRUCTURE	H-12192
CROSS SECTION - R.H.R. SERVICE WATER PUMPS	S-14176
CROSS SECTION - PLANT SERVICE WATER PUMPS	S-14177
GENERAL ARR'GT. - TRAVELING WATER SCREENS FOR RIVER INTAKE	S-12421
PIPING - RADWASTE DILUTION	H-11140
PLANT SERVICE WATER STRAINER	S-55652
GENERAL ARR'GT. - STRAINERS FOR RHR SERVICE WATER	S-14560
PIPING - RHR AND PLANT SER. WATER MIN. FLOW AND VENT LINES - INTAKE STR.	H-11213
VENTURI FLOW TUBE	SX-11758
SERVICE AIR, SANITARY WATER AND MISC. SERVICE WATER - INTAKE STRUCTURE	H-11259
PIPING - PRESS. SWITCHES FOR SER. WATER @ INTAKE STR. DIESEL & CONTROL BLDGS.	H-11258
RHR SERVICE WATER PIPING AT INTAKE STRUTURE	D-11601
S.W. ISOMETRIC P41-HGR-2	S-00780
S.W. ISOMETRIC P41-33/P41-HGR-1	S-00779
TYPES OF PENETRATION SEALS FOR PIPE AND DUCT	H-16610

WORK THIS DRAWING WITH DRAWING H-11212

ACADOVY H11142

SOUTHERN COMPANY

Version: 38.0 | Date: 3-11-16

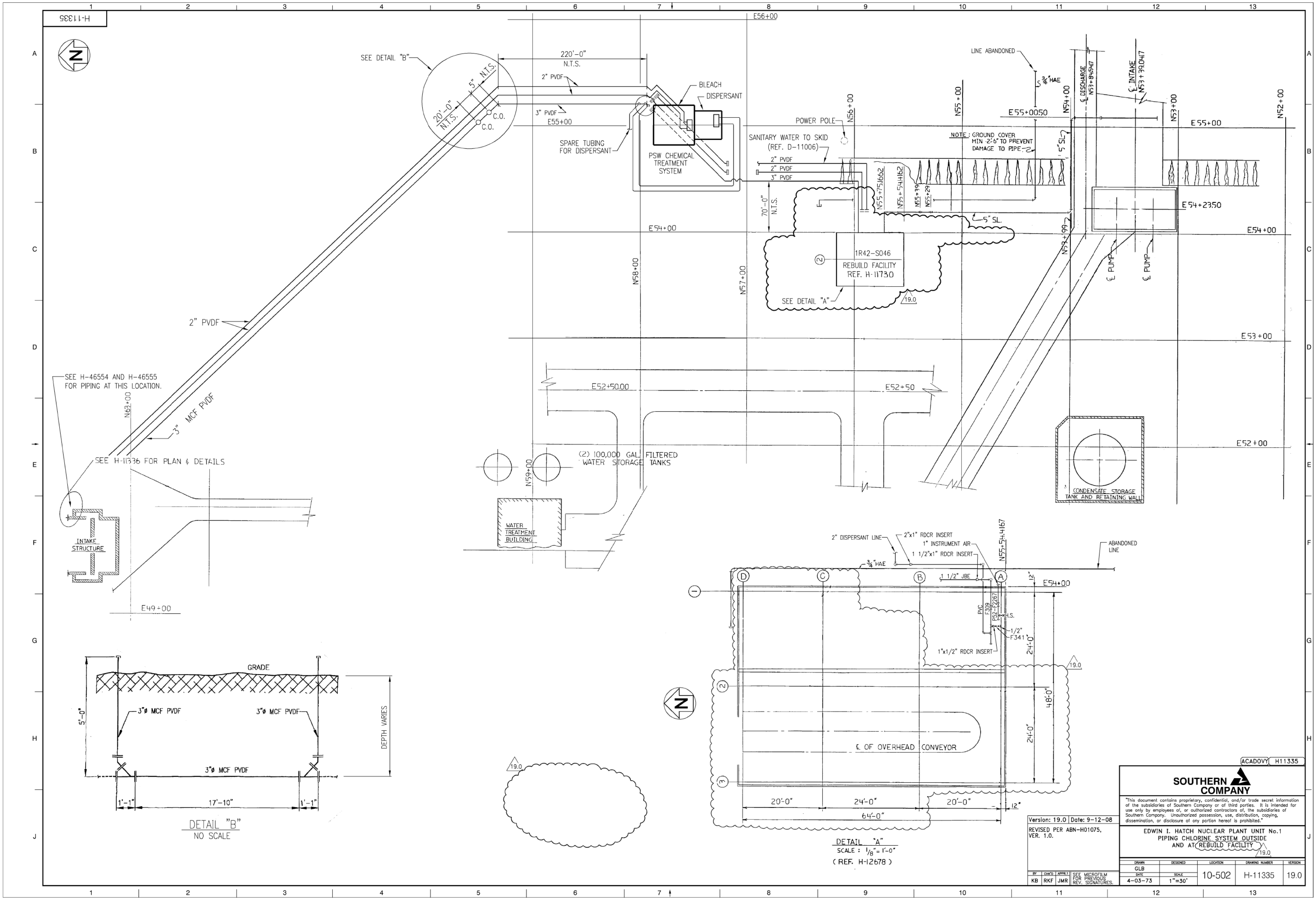
REVISED PER
ABN SNC476653M009, VER. 2.0

BY	CHK'D	APPR.1
Vep	JLO	CYN

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1

PIPING – SERVICE WATER AT
RIVER INTAKE STRUCTURE

DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
WTB	JCP	10-502	H-11142	38.0
DATE: 4-19-71	SCALE: AS SHOWN			



H-11335
SEE DETAIL "B"
220'-0"
N.T.S.
2" PVDF
3" PVDF
E55+00
20'-0" N.T.S.
5" N.T.S.
C.O.
C.O.
BLEACH
DISPERSANT
SPARE TUBING FOR DISPERSANT
PSW CHEMICAL TREATMENT SYSTEM
E56+00
POWER POLE
N56+00
SANITARY WATER TO SKID (REF. D-11006)
2" PVDF
2" PVDF
3" PVDF
70'-0" N.T.S.
N55+751662
N55+544162
N55+39
N55+29
LINE ABANDONED
3/4" HAE
E55+0050
N55+00
N54+00
℄ DISCHARGE N53+845417
℄ INTAKE N53+390417
N53+00
N52+00
E55+00
NOTE: GROUND COVER MIN 2'-6" TO PREVENT DAMAGE TO PIPE
5" SL
5" SL.
E54+2350
E54+00
N53+99
℄ PUMP
℄ PUMP
1R42-S046
REBUILD FACILITY
REF. H-11730
SEE DETAIL "A"
19.0
N58+00
N57+00
E53+00
2" PVDF
SEE H-46554 AND H-46555 FOR PIPING AT THIS LOCATION.
N61+00
3" MCF PVDF
E52+50.00
E52+50
E52+00
SEE H-11336 FOR PLAN & DETAILS
(2) 100,000 GAL. FILTERED WATER STORAGE TANKS
N59+00
CONDENSATE STORAGE TANK AND RETAINING WALL
INTAKE STRUCTURE
WATER TREATMENT BUILDING
E49+00
2" DISPERSANT LINE
2"x1" RDCR INSERT
1" INSTRUMENT AIR
1 1/2"x1" RDCR INSERT
N55+544167
ABANDONED LINE
3/4" HAE
1 1/2" JBE
D
C
B
A
1
E54+00
12"
PVC F309
P52-F267
H.S.
1/2" F341
1"x1/2" RDCR INSERT
24'-0"
48'-0"
24'-0"
2
3
℄ OF OVERHEAD CONVEYOR
20'-0"
24'-0"
20'-0"
64'-0"
12"
19.0
DETAIL "A"
SCALE : 1/8" = 1'-0"
(REF. H-12678)
GRADE
5'-0"
3"ø MCF PVDF
3"ø MCF PVDF
3"ø MCF PVDF
DEPTH VARIES
1'-1"
17'-10"
1'-1"
DETAIL "B"
NO SCALE
19.0
ACADOVY H11335
SOUTHERN COMPANY
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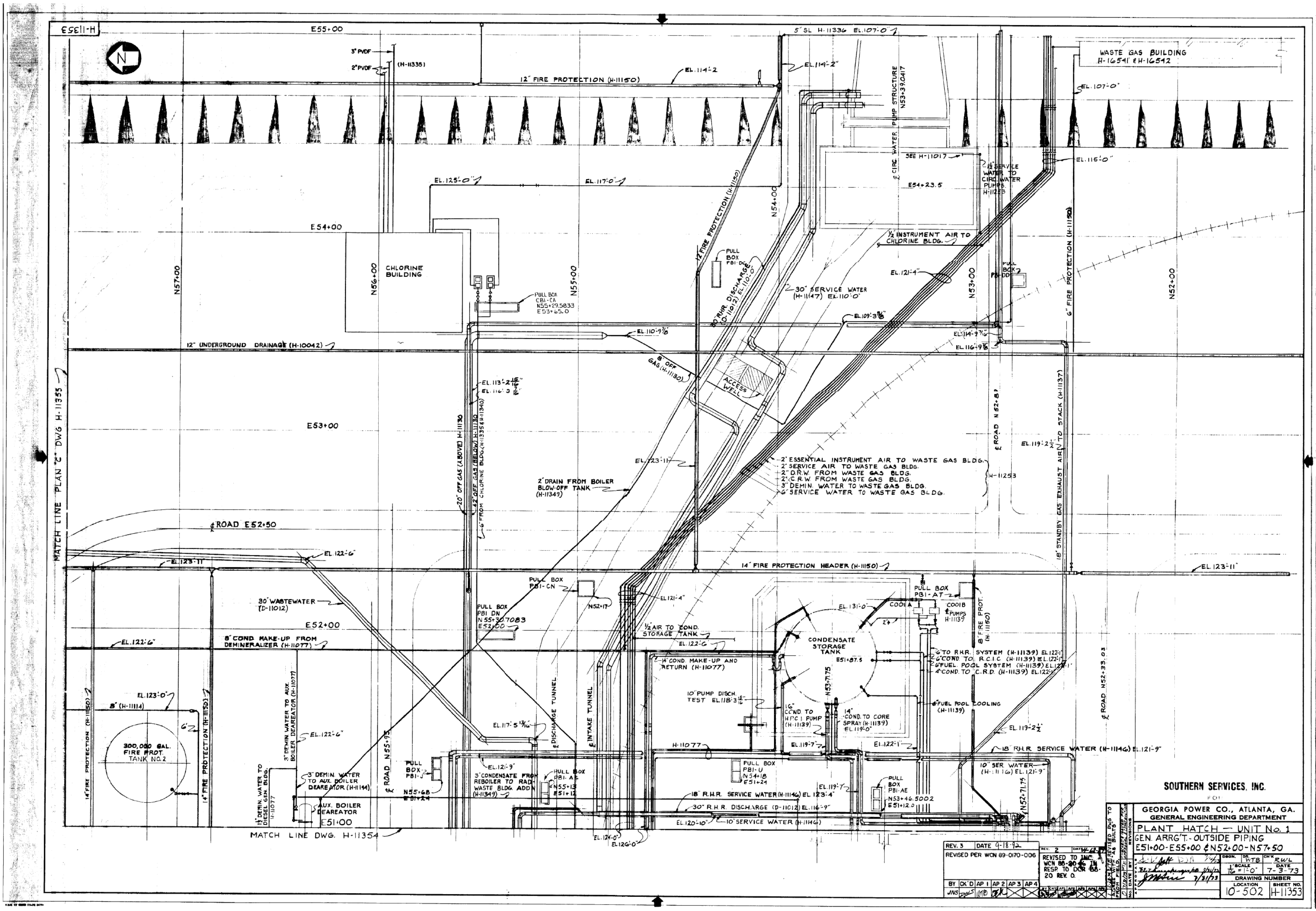
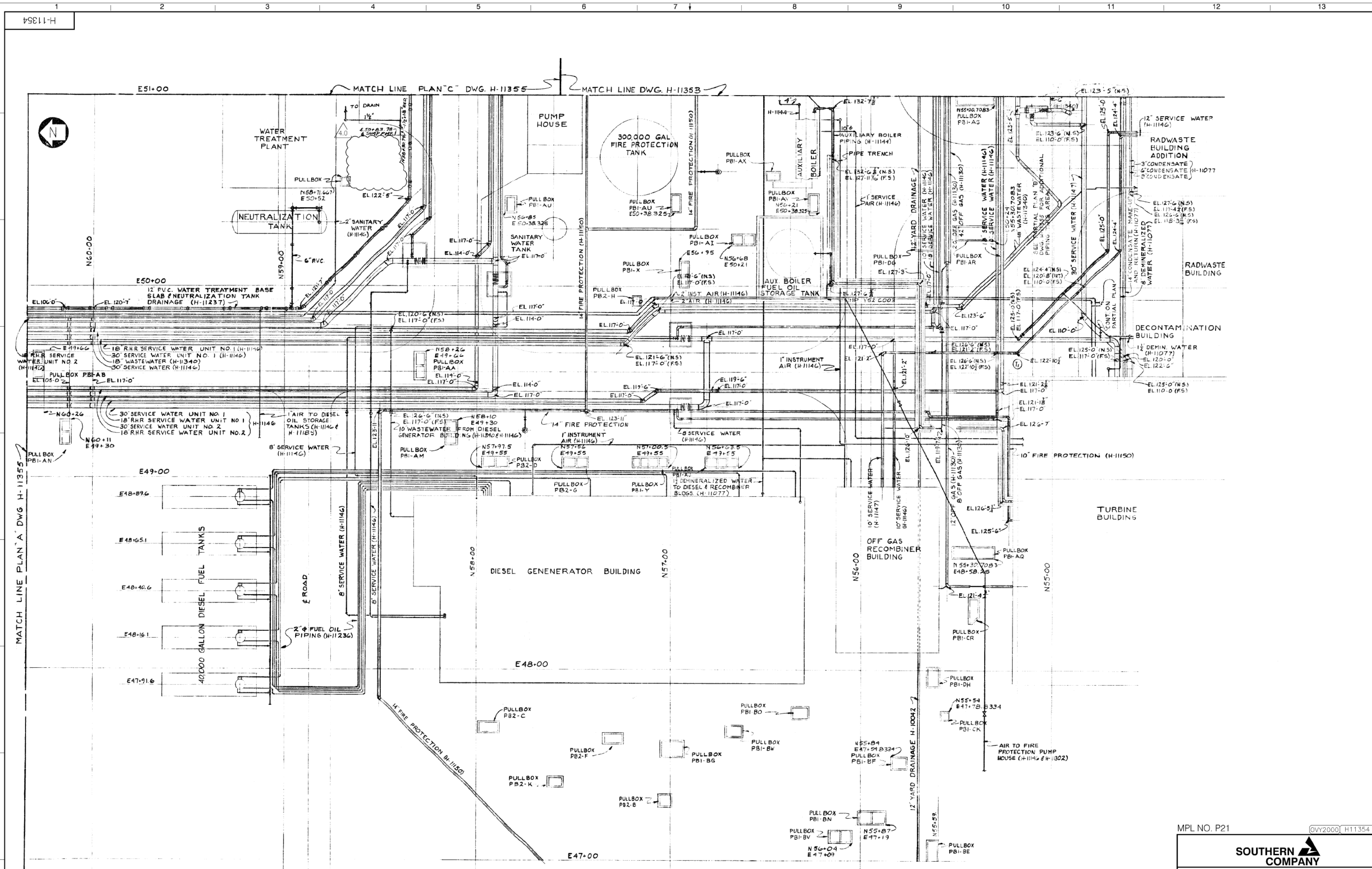
Version: 19.0 Date: 9-12-08
REVISED PER ABN-H01075, VER. 1.0.
EDWIN I. HATCH NUCLEAR PLANT UNIT No.1
PIPING CHLORINE SYSTEM OUTSIDE
AND AT REBUILD FACILITY
19.0
BY KB
CHK'D RKF
APPR'D JMR
SEE MICROFILM FOR PREVIOUS REV. SIGNATURES.
DRAWN GLB
DATE 4-03-73
SCALE 1"=30'
LOCATION 10-502
DRAWING NUMBER H-11335
VERSION 19.0



H-11353
E55+00
E54+00
E53+00
E52+00
E51+00
N57+00
N56+00
N55+00
N54+00
N53+00
N52+00
3" PVDF
2" PVDF
(H-11335)
12" FIRE PROTECTION (H-11150)
EL.114'-2
5" SL H-11336 EL.107'-0"
WASTE GAS BUILDING
H-16541 & H-16542
EL.107'-0"
CIRC WATER PUMP STRUCTURE
N53+39.0417
SEE H-11017
E54+23.5
1/2" SERVICE WATER TO CIRC WATER PUMPS H-11253
EL.116'-0"
EL.125'-0"
EL.117'-0"
CHLORINE BUILDING
PULL BOX CB1-CA N55+29.5833 E53+65.0
12" FIRE PROTECTION (H-11150)
30" RHR DISCHARGE (D-11012) EL.110'-0"
30" SERVICE WATER (H-11147) EL.110'-0"
1/2" INSTRUMENT AIR TO CHLORINE BLDG.
EL.121'-4"
6" FIRE PROTECTION (H-11150)
EL.109'-3 3/8"
EL.110'-9 3/8"
12" UNDERGROUND DRAINAGE (H-10042)
8" OFF GAS (H-11130)
ACCESS WELL
EL.114'-9 3/8"
EL.116'-9 3/8"
EL.113'-2 1/2"
EL.116'-3
20" OFF GAS (ABOVE) H-11130
12" OFF GAS (BELOW) H-11130
6" FROM CHLORINE BLDG. (H-11335 & H-11340)
ROAD N52+87
18" STANDBY GAS EXHAUST AIR TO STACK (H-11137)
EL.119'-2 1/4"
EL.123'-11"
2" DRAIN FROM BOILER BLOW-OFF TANK (H-11349)
2" ESSENTIAL INSTRUMENT AIR TO WASTE GAS BLDG.
2" SERVICE AIR TO WASTE GAS BLDG.
2" D.R.W. FROM WASTE GAS BLDG.
2" C.R.W. FROM WASTE GAS BLDG.
3" DEMIN. WATER TO WASTE GAS BLDG.
6" SERVICE WATER TO WASTE GAS BLDG.
H-11253
MATCH LINE PLAN "C" DWG H-11355
℄ ROAD E52+50
EL.123'-11
EL.122'-6"
14" FIRE PROTECTION HEADER (H-11150)
EL.123'-11"
PULL BOX PB1-CN
N52+17
EL.121'-4"
PULL BOX PB1-AT
30" WASTEWATER (D-11012)
PULL BOX PB1 DN N55+30.7083 E52+00
1/2" AIR TO COND. STORAGE TANK
EL.131'-0"
COOL A
COOL B PUMPS H-11139
8" FIRE PROT. (H-11150)
EL.122'-6"
8" COND MAKE-UP FROM DEMINERALIZER (H-11077)
EL.122'-6
4" COND. MAKE-UP AND RETURN (H-11077)
CONDENSATE STORAGE TANK
E51+87.5
N53+71.75
6" TO R.H.R. SYSTEM (H-11139) EL.122'-1"
6" COND TO R.C.I.C. (H-11139) EL.122'-1"
6" FUEL POOL SYSTEM (H-11139) EL.122'-1"
4" COND. TO C.R.D. (H-11139) EL.122'-1"
10" PUMP DISCH. TEST EL.118'-3 1/4"
16" COND TO HPCI PUMP (H-11139)
14" COND. TO CORE SPRAY (H-11139) EL.119'-0"
6" FUEL POOL COOLING (H-11139)
DISCHARGE TUNNEL
INTAKE TUNNEL
EL.117'-5 13/16"
H-11077
EL.119'-7
EL.122'-1"
EL.119'-2 1/4"
18" R.H.R. SERVICE WATER (H-11146) EL.121'-9"
10" SER WATER (H-11146) EL.121'-9"
℄ ROAD N52+33.03
EL.123'-0"
8" (H-11114)
14" FIRE PROTECTION (H-11150)
300,000 GAL. FIRE PROT. TANK NO. 2
3" DEMIN WATER TO AUX. BOILER DEAREATOR (H-11077)
EL.122'-6"
3" DEMIN. WATER TO AUX. BOILER DEAREATOR (H-11144)
1 1/2" DEMIN. WATER TO DIESEL GEN. BLDG. H-11077
AUX. BOILER DEAREATOR
℄ ROAD N55+93
PULL BOX PB1-J N55+68 E51+24
EL.121'-9"
3" CONDENSATE FROM REBOILER TO RAD-WASTE BLDG. ADDN (H-11349)
PULL BOX PB1-AS N55+13 E51+12
PULL BOX PB1-U N54+18 E51+24
PULL BOX PB1-AE N53+46.5002 E51+12.0
N52+71.75
18" R.H.R. SERVICE WATER (H-11146) EL.123'-4"
EL.119'-7
30" R.H.R. DISCHARGE (D-11012) EL.116'-9"
EL.120'-10"
10" SERVICE WATER (H-11146)
EL.124'-0"
EL.126'-0"
MATCH LINE DWG. H-11354
SOUTHERN SERVICES, INC.
FOR
GEORGIA POWER CO., ATLANTA, GA.
GENERAL ENGINEERING DEPARTMENT
PLANT HATCH — UNIT No. 1
GEN. ARRG'T. - OUTSIDE PIPING
E51+00-E55+00 ℄ N52+00-N57+50
REV. 3 DATE 4-18-92
REVISED PER WCN 89-0170-006
REV. 2
REVISED TO INC. WCN 88-20
BY CK'D AP 1 AP 2 AP 3 AP 4
DSGN. WTB
CH'K RWL
SCALE 1/16" = 1'-0"
DATE 7-3-73
DRAWING NUMBER
LOCATION 10-502
SHEET NO. H-11353



MPL NO. P21

0VY2000 H11354

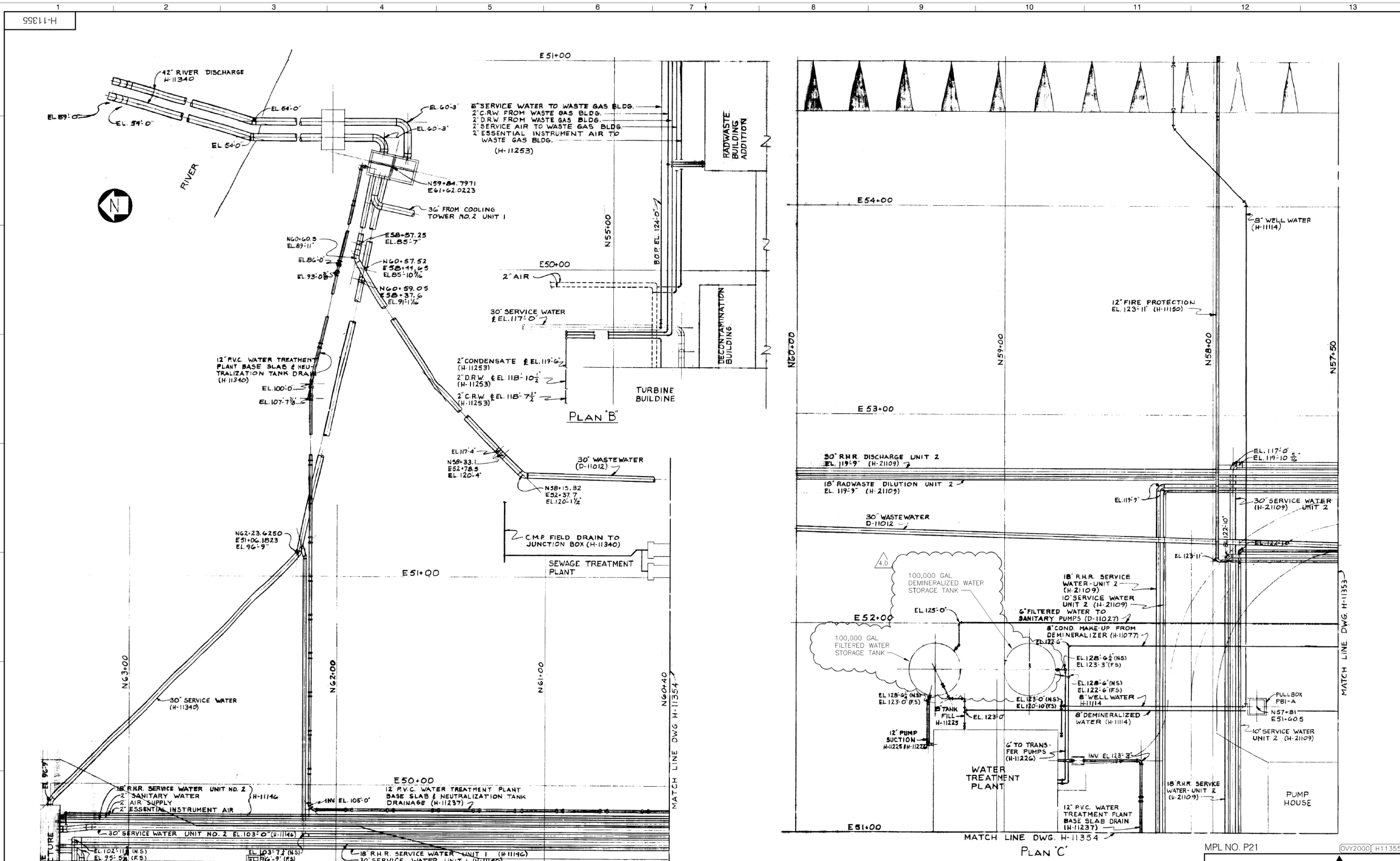
SOUTHERN COMPANY

Version: 4.0 Date: 5-20-09

REVISED PER ABN 1060789801M120, VER. 1.0

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1
GENERAL ARRANGEMENT - OUTSIDE PIPING
E47+00 TO E51+00 & N54+50 TO N60+25

BY	CHK'D	APPR'D		DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
JLO	JWM	JMR	SEE MICROFILM FOR PREVIOUS REV. SIGNATURES.	WTB	KWH	10-502	H-11354	4.0
				DATE 7-10-73	SCALE None			



MPL NO. P21

OVY2000 H11355

SOUTHERN COMPANY

Version: 4.0 | Date: 5-20-09

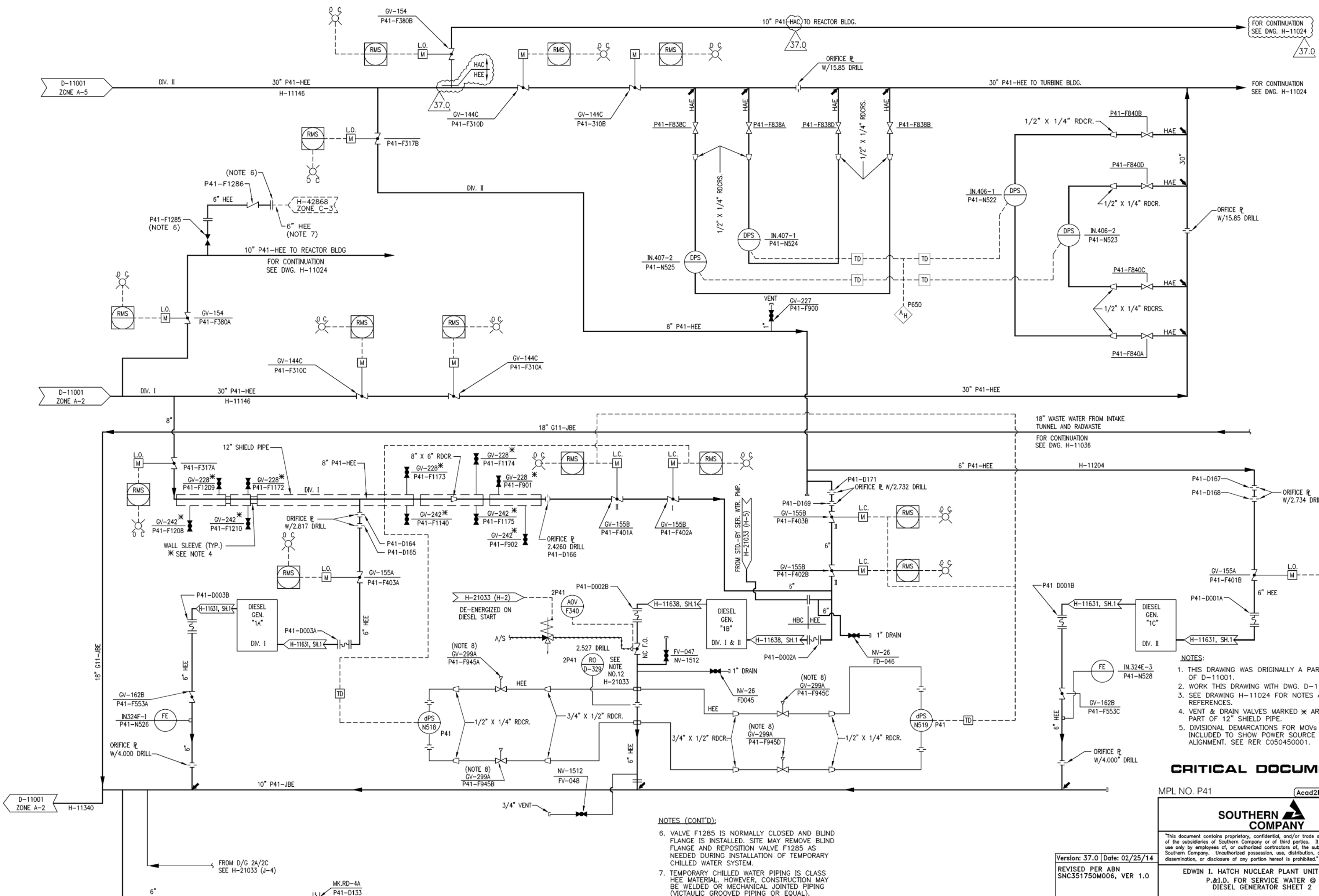
REVISED PER ABN 1060789801M121, VER. 1.0

BY	CHK'D	APPR'D	
JLO	JWM	JMR	SEE MICROFILM FOR PREVIOUS REV. SIGNATURES.

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1
GENERAL ARRANGEMENT - OUTSIDE PIPING
N57+50 TO N60+00 & E51+00 TO E54+70,
N60+40 & E49+20 TO RIVER

DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
WTB	J.C. VANCE	10-502	H-11355	4.0
DATE 7-26-73	SCALE None			

H-11600



NOTES:

1. THIS DRAWING WAS ORIGINALLY A PART OF D-11001.
2. WORK THIS DRAWING WITH DWG. D-11001.
3. SEE DRAWING H-11024 FOR NOTES AND REFERENCES.
4. VENT & DRAIN VALVES MARKED ✱ ARE PART OF 12" SHIELD PIPE.
5. DIVISIONAL DEMARCATIONS FOR MOVs ARE INCLUDED TO SHOW POWER SOURCE DIVISIONAL ALIGNMENT. SEE RER C050450001.

NOTES (CONT'D):

6. VALVE F1285 IS NORMALLY CLOSED AND BLIND FLANGE IS INSTALLED. SITE MAY REMOVE BLIND FLANGE AND REPOSITION VALVE F1285 AS NEEDED DURING INSTALLATION OF TEMPORARY CHILLED WATER SYSTEM.
7. TEMPORARY CHILLED WATER PIPING IS CLASS HEE MATERIAL. HOWEVER, CONSTRUCTION MAY BE WELDED OR MECHANICAL JOINTED PIPING (VICTAULIC GROOVED PIPING OR EQUAL).

CRITICAL DOCUMENT

MPL NO. P41 | Acad2K | H11600

SOUTHERN COMPANY

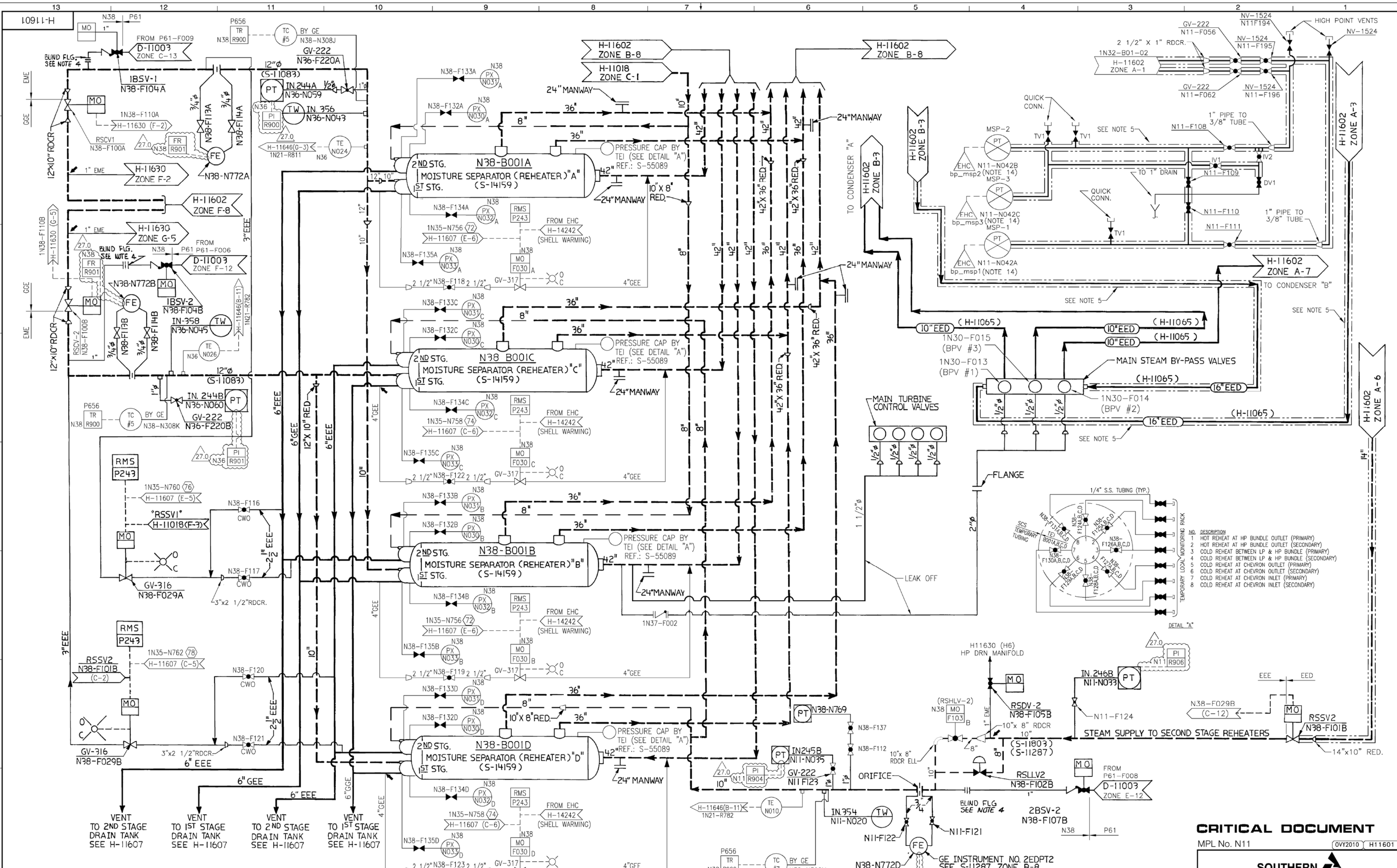
Version: 37.0 | Date: 02/25/14

REVISED PER ABN SNC351750M006, VER 1.0

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1
P.&I.D. FOR SERVICE WATER @ DIESEL GENERATOR SHEET 2

BY	CHK'D	APPR'D		DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
DCP	JWM	JMR	SEE MICROFILM FOR PREVIOUS REV. SIGNATURES.	AAB	DUNN	10-502	H-11600	37.0
				DATE: 1-6-82	SCALE: None			

DRAWING CATEGORY: CRITICAL



NOTES:

1. THIS DWG. ORIGINATED FROM DWG. H-11018.
2. WORK THIS DWG. WITH DWGS. H-11018 AND H-11602.
3. FOR ADDITIONAL NOTES AND REFERENCES SEE DWG. H-11018.
4. BLIND FLG. INSTALLED TO PROVIDE ISOLATION BETWEEN AUX. STEAM PIPING AND RX. SYSTEM.
5. IN SUPPORT OF AST (10CFR50.67), THE HIGHLIGHTED EQUIPMENT, PIPING AND ASSOCIATED SUPPORTS HAVE BEEN VERIFIED AS SEISMICALLY ADEQUATE FOR THE HATCH U2 1/2 SME EARTHQUAKE TO THE EXTENT REQUIRED TO PERFORM THEIR REQUIRED SAFETY FUNCTION. FUTURE REPAIRS OR MODIFICATIONS SHOULD BE PERFORMED IN A MANNER THAT MAINTAINS THIS SEISMIC QUALIFICATION. REFERENCE ENCLOSURE 8 OF NL-06-1637.

CRITICAL DOCUMENT

MPL No. N11 | 0VY2010 | H11601

SOUTHERN COMPANY

Version: 27.0 | Date: 05/20/16

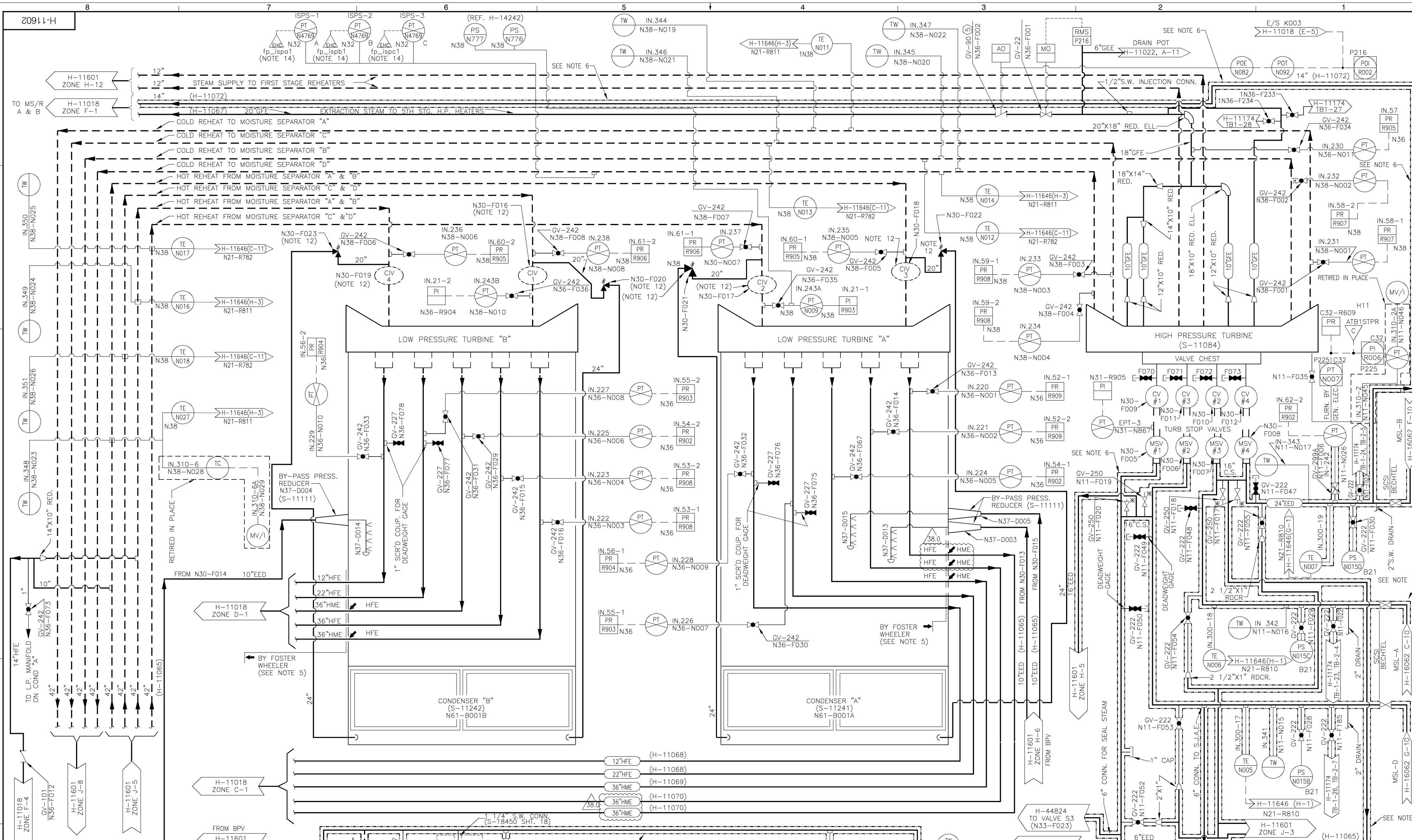
REVISED PER SNC785868M003, VER 1.0

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1
P&ID MAIN & AUX. STEAM SYSTEM
SHEET 2

BY	CHK'D	APPR.
GTR	DAB	JTL

DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
JLH	JWM	10-502	H-11601	27.0
DATE: 1-11-82	SCALE: None			

DRAWING CATEGORY: CRITICAL



NOTES:

1. THIS DWG. ORIGINATED FROM DWG. H-11018.
2. WORK THIS DWG. WITH DWG'S H-11018 & H-11601.
3. FOR ADDITIONAL NOTES AND REFERENCES SEE DWG. H-11018.
4. ✱ 2" DRAINS FROM VALVES F017, F018, F019 AND F020 ARE ROUTED TO H.P. DRN. MANIFOLD. ABOVE LISTED VALVES ARE LOCKED OPEN.
5. 1N36 EXTRACTION STEAM PIPING INTERNAL TO THE CONDENSER IS CONSIDERED PIPING CLASS HFE UNLESS NOTED OTHERWISE. (FOR PIPING ARRANGEMENT SEE S-53576 AND S-53577).
6. IN SUPPORT OF AST (10CFR50.67), THE HIGHLIGHTED EQUIPMENT, PIPING AND ASSOCIATED SUPPORTS HAVE BEEN VERIFIED AS SEISMICALLY ADEQUATE FOR THE HATCH U2 1/2 SME EARTHQUAKE TO THE EXTENT REQUIRED TO PERFORM THEIR REQUIRED SAFETY FUNCTION. FUTURE REPAIRS OR MODIFICATIONS SHOULD BE PERFORMED IN A MANNER THAT MAINTAINS THIS SEISMIC QUALIFICATION. REFERENCE ENCLOSURE 8 OF NL-06-1637.

CRITICAL DOCUMENT

Version: 38.0 Date: 03/19/18

REVISED PER SNC931808M004, VER 1.0

BY	CHKD	APPR.
GTR	WTB	BDW

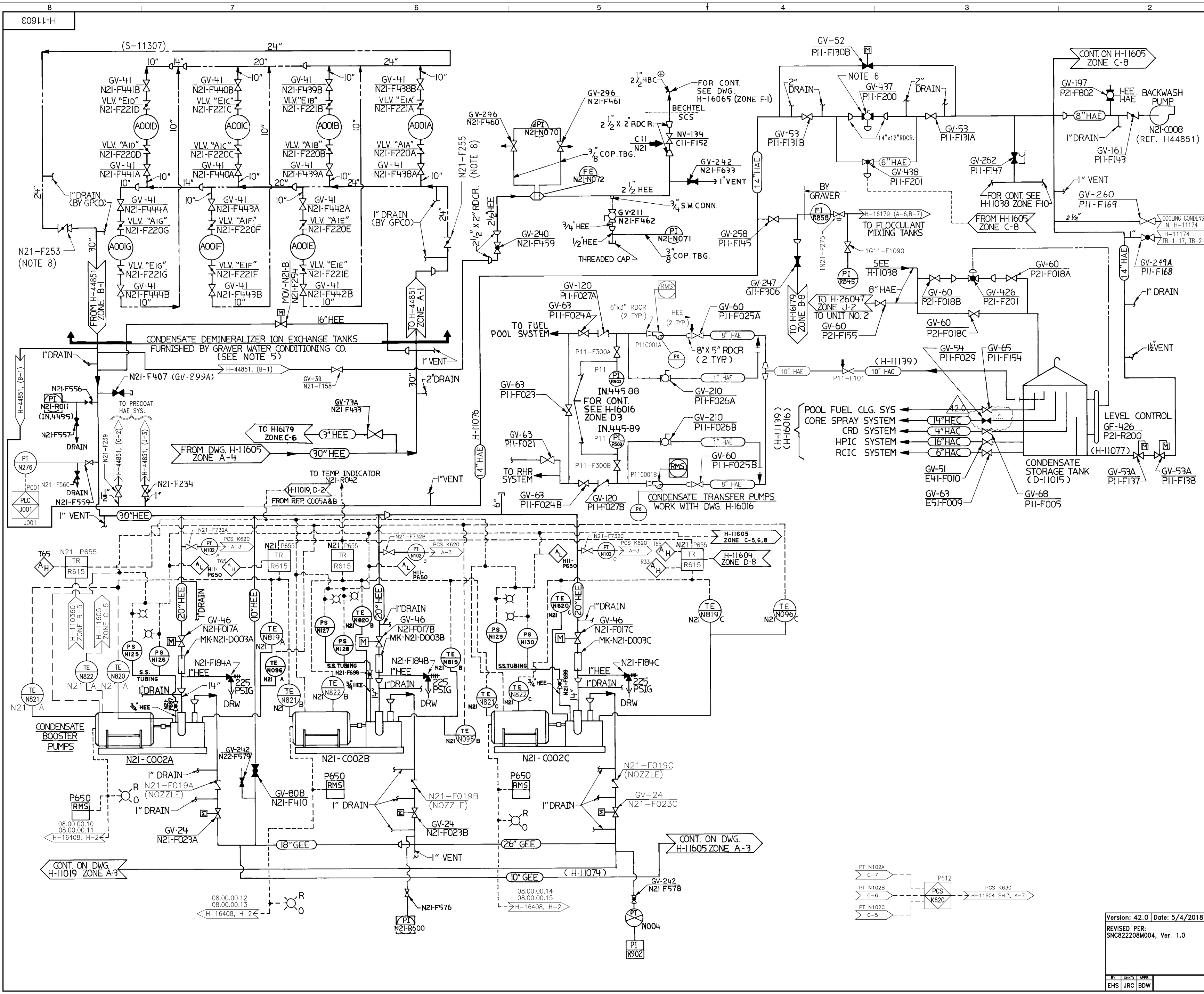
ACAD2010 | H11602

SOUTHERN COMPANY

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1
P & ID MAIN & AUX. STEAM SYSTEM
SHEET 3

DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
JLH		10-502	H-11602	38.0
DATE 1-11-82	SCALE None			

DRAWING CATEGORY: CRITICAL



NOTES:

1. SEE DWG. H-11026, H 11615 AND H-11616 FOR VENTS & DRAINS.
2. THIS DWG. ORIGINATED FROM H-11019.
3. WORK THIS DWG. WITH H-11019, H-11604 AND H-11605.
4. FOR OTHER NOTES AND REFERENCES SEE H-11019.
5. THIS PIPING SHOWN FOR CLARITY ONLY. FOR DETAILED PIPING DIAGRAM SEE H-44851.
6. VALVE 1P11-F200 REMOVED FROM AUTOMATIC CONTROL OF CONDENSER SPILL LOOP. VALVE IS MECHANICALLY PINNED CLOSED AND DEACTIVATED (REFERENCE DCR # 75-134).
7. ⊕ DENOTES DOWNGRADED CRD PIPING AND COMPONENTS FROM CST SUPPLY VALVE P11-F005 AND CONDENSATE SUPPLY VALVE C11-F152 TO CRD RETURN TO RWCU CHECK VALVE C11-F083, CRD MIN FLOW TO HPCI TEST LINE, CRD WATER TO RWCU PUMP SEAL CHECK VALVES G31-F206A/B, CRD WATER TO RECIRC PUMP SEAL CHECK VALVES B31-F017A/B AND CRD WATER TO/FROM CRD HYDRAULIC CONTROL UNITS. THIS PIPING MAY BE PROCURED AND INSTALLED IN ACCORDANCE WITH ANSI/ASME B31.1 REQUIREMENTS INSTEAD OF ORIGINAL CONSTRUCTION CODE OF USAS B31.7, CLASS 3.

ORIG. CLASS	SUBST. CLASS
HBC	HEE

8. VALVE DISC HAS BEEN REMOVED FROM VALVES N21-F253 & N21-F255 RENDERING THEM INOPERABLE.

REFERENCES:

H-11019	P&ID CONDENSATE & FEEDWATER SYS. SHT. 1
H-11604	P&ID CONDENSATE & FEEDWATER SYS. SHT. 3
H-11605	P&ID CONDENSATE & FEEDWATER SYS. SHT. 4
H-11026	P&ID CONDENSATE & FEEDWATER BY-PASS, DRAINS & VENTS
H-11615	P&ID CONDENSATE & FEEDWATER BY-PASS DRAINS & VENTS
H-11616	P&ID CONDENSATE & FEEDWATER BY-PASS, DRAINS & VENTS
H-11100	PIPING - CONDENSATE & FEEDWATER DRAINS & VENTS
H-44851	CONDENSATE POLISHING DEMINERALIZER SYSTEM P&ID
S-11307	CONDENSATE POLISHING SYSTEM – LAYOUT

CRITICAL DOCUMENT

MPL No. N21

0VY2010 H11603

SOUTHERN COMPANY

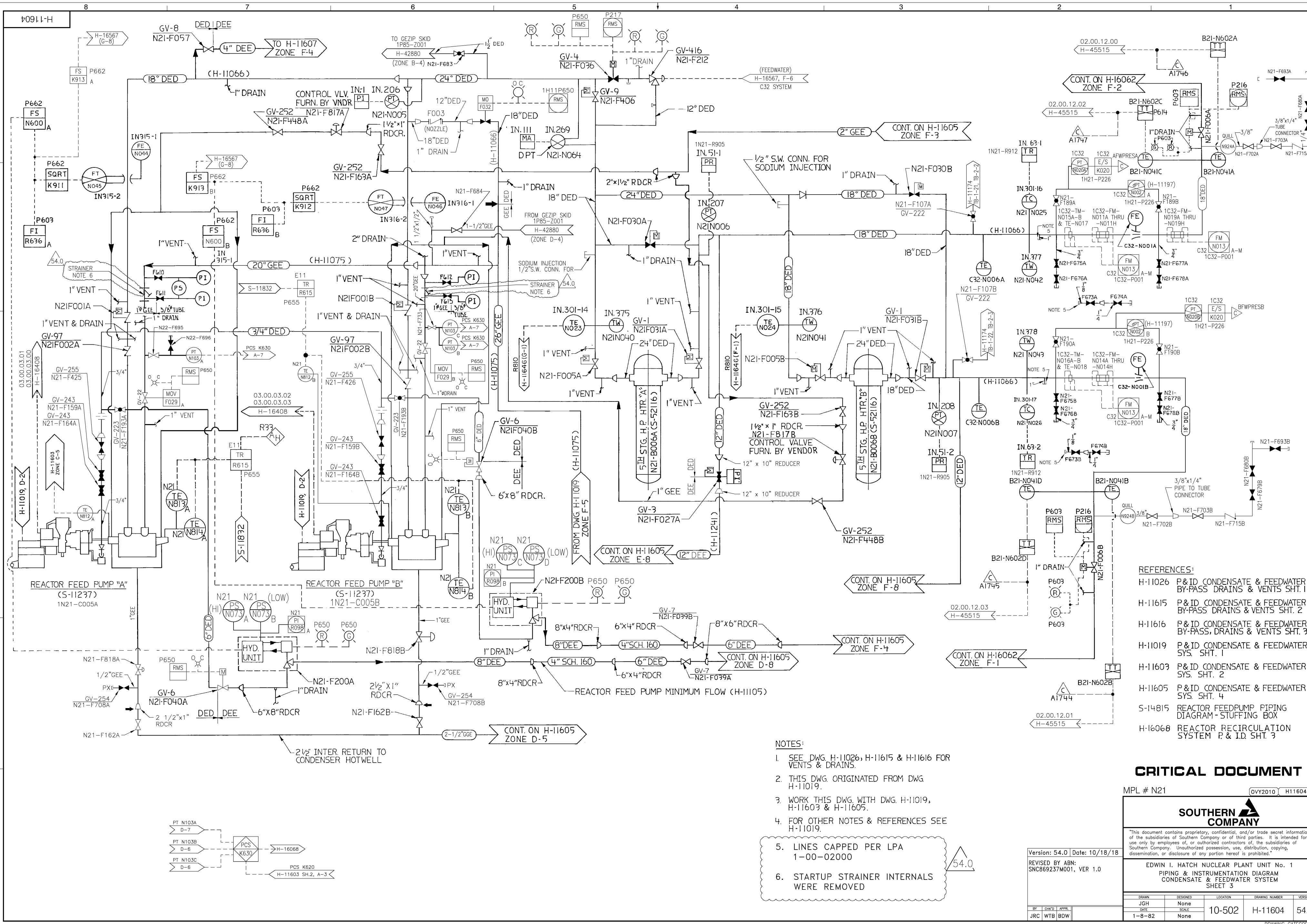
Version: 42.0 Date: 5/4/2018

REVISED PER: SNC822208M004, Ver. 1.0

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1
PIPING & INSTRUMENTATION DIAGRAM
CONDENSATE AND FEEDWATER SYSTEM
SHEET 2

BY	CHK'D	APPR.	DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
EHS	JRC	BDW	JGH / DATE 1-7-82	SCALE None	10-502	H-11603	42.0

DRAWING CATEGORY: CRITICAL



REFERENCES:

H-11026	P&ID CONDENSATE & FEEDWATER BY-PASS DRAINS & VENTS SHT. 1
H-11615	P&ID CONDENSATE & FEEDWATER BY-PASS DRAINS & VENTS SHT. 2
H-11616	P&ID CONDENSATE & FEEDWATER BY-PASS, DRAINS & VENTS SHT. 3
H-11019	P&ID CONDENSATE & FEEDWATER SYS. SHT. 1
H-11603	P&ID CONDENSATE & FEEDWATER SYS. SHT. 2
H-11605	P&ID CONDENSATE & FEEDWATER SYS. SHT. 4
S-14815	REACTOR FEEDPUMP PIPING DIAGRAM - STUFFING BOX
H-16068	REACTOR RECIRCULATION SYSTEM P. & I.D. SHT. 3

NOTES:

1. SEE DWG. H-11026, H-11615 & H-11616 FOR VENTS & DRAINS.
2. THIS DWG. ORIGINATED FROM DWG. H-11019.
3. WORK THIS DWG. WITH DWG. H-11019, H-11603 & H-11605.
4. FOR OTHER NOTES & REFERENCES SEE H-11019.
5. LINES CAPPED PER LPA 1-00-02000
6. STARTUP STRAINER INTERNALS WERE REMOVED

54.0

CRITICAL DOCUMENT

MPL # N21

OVY2010 H11604

SOUTHERN COMPANY

Version: 54.0 Date: 10/18/18

REVISED BY ABN: SNC869237M001, VER 1.0

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1

PIPING & INSTRUMENTATION DIAGRAM
CONDENSATE & FEEDWATER SYSTEM
SHEET 3

BY	CHK'D	APPR.	DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
JRC	WTB	BDW	JGH	None	10-502	H-11604	54.0
			DATE 1-8-82	SCALE None			

DRAWING CATEGORY: CRITICAL

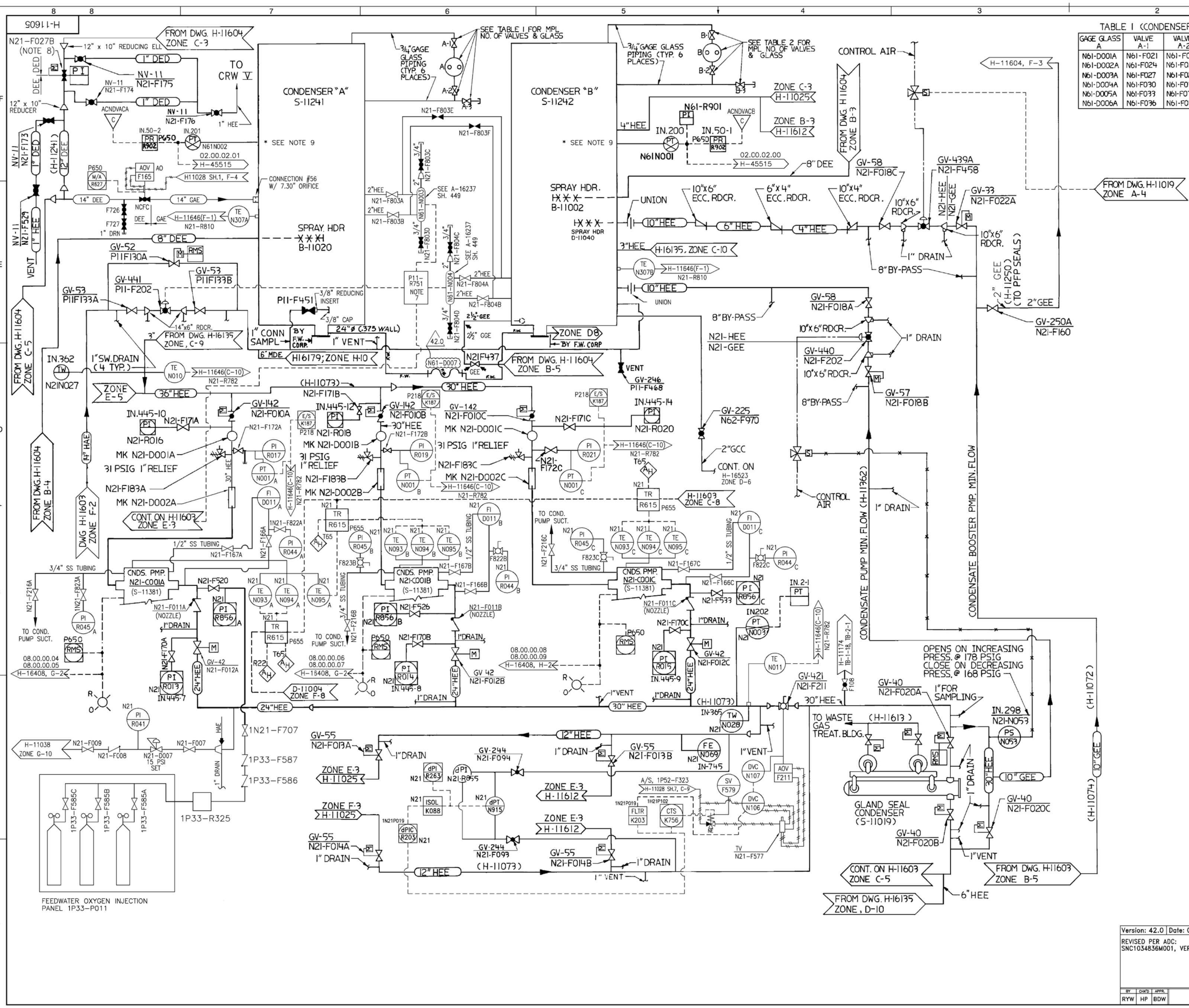


TABLE 1 (CONDENSER "A")

GAGE GLASS A	VALVE A-1	VALVE A-2	VALVE A-3
N61-D001A	N61-F021	N61-F022	N61-F023
N61-D002A	N61-F024	N61-F025	N61-F026
N61-D003A	N61-F027	N61-F028	N61-F029
N61-D004A	N61-F030	N61-F031	N61-F032
N61-D005A	N61-F033	N61-F034	N61-F035
N61-D006A	N61-F036	N61-F037	N61-F038

TABLE 2 (CONDENSER "B")

GAGE GLASS B	VALVE B-1	VALVE B-2	VALVE B-3
N61-D001B	N61-F043	N61-F044	N61-F045
N61-D002B	N61-F046	N61-F047	N61-F048
N61-D003B	N61-F049	N61-F050	N61-F051
N61-D004B	N61-F052	N61-F053	N61-F054
N61-D005B	N61-F055	N61-F056	N61-F057
N61-D006B	N61-F058	N61-F059	N61-F060

NOTES:

1. SEE DWG. H-11026, H-11615 AND H-11616 FOR BY-PASS, VENTS & DRAINS.
2. THIS DWG. ORIGINATED FROM H-11019.
3. WORK THIS DWG. WITH DWG. H-11603, H-11604 AND H-11019.
4. FOR OTHER NOTES AND REFERENCES SEE DWG. H-11019.
5. IN21-F175 AND IN21-F176 (NV-11) VALVE REPLACED GV-222. THIS IS NOT A NUCLEAR APPLICATION.
6. IN21-F173 AND IN21-F174 (NV-11) VALVE REPLACED GV-242. THIS IS NOT A NUCLEAR APPLICATION.
7. SEE VENDOR DWG. S14732 FOR DIAGRAM OF ELECTRONIC CONTROL SYSTEM FOR LEVEL TRANSMITTERS N61-N003 AND N004 AND ASSOCIATED VALVES P11-F201 AND P11-F202.
8. SEE EQUIVALENCY NPRG LOG 1N21-F027-001.
9. * REFERENCE DRAWING H-11613 FOR OTHER PRESSURE INSTRUMENT CONNECTIONS ON THIS LINE.

REFERENCES:

H-11019	P&ID CONDENSATE & FEEDWATER SYS. SHT. 1
H-11603	P&ID CONDENSATE & FEEDWATER SYS. SHT. 2
H-11604	P&ID CONDENSATE & FEEDWATER SYS. SHT. 3
H-11026	P&ID CONDENSATE & FEEDWATER BY-PASS, DRAINS & VENTS SHT. 1
H-11615	P&ID CONDENSATE & FEEDWATER BY-PASS, DRAINS & VENTS SHT. 2
H-11616	P&ID CONDENSATE & FEEDWATER BY-PASS, DRAINS & VENTS SHT. 3
H-11100	PIPING - CONDENSATE & FEEDWATER DRAINS & VENTS
S-14732	GENERAL ELECTRIC CONTROL SYSTEM BLOCK DIAGRAM
S 11241 } S 11242 }	OUTLINE SURFACE CONDENSER
H-11038	DEMINERALIZED WATER P&ID

CRITICAL DOCUMENT

MPL NO. N21   0VY2000   H11605

SOUTHERN COMPANY

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1
PIPING & INSTRUMENTATION DIAGRAM
CONDENSATE & FEEDWATER SYS. SHT 4

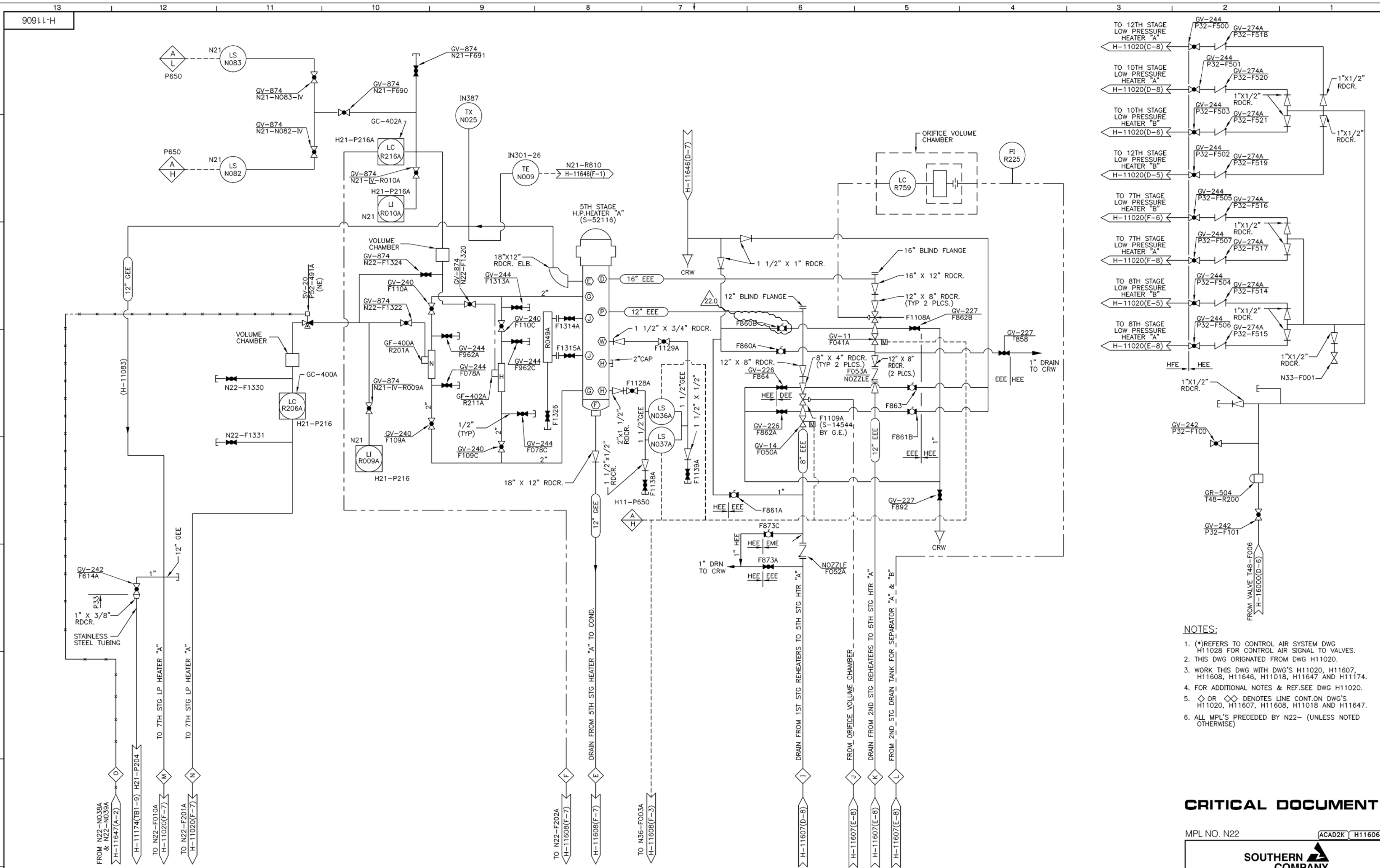
Version: 42.0 | Date: 09/20/19

REVISED PER ADC: SNC1034836M001, VER 1.0

BY	CHK'D	APPR.
RYW	HP	BDW

DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
JGH	None	10-502	H-11605	42.0
DATE: 1-8-82	SCALE: None			

DRAWING CATEGORY: CRITICAL



NOTES:

1. (*)REFERS TO CONTROL AIR SYSTEM DWG H11028 FOR CONTROL AIR SIGNAL TO VALVES.
2. THIS DWG ORIGNATED FROM DWG H11020.
3. WORK THIS DWG WITH DWG'S H11020, H11607, H11608, H11646, H11018, H11647 AND H11174.
4. FOR ADDITIONAL NOTES & REF.SEE DWG H11020.
5. ◇ OR ◇◇ DENOTES LINE CONT.ON DWG'S H11020, H11607, H11608, H11018 AND H11647.
6. ALL MPL'S PRECEDED BY N22- (UNLESS NOTED OTHERWISE)

CRITICAL DOCUMENT

MPL NO. N22

ACAD2K H11606

SOUTHERN COMPANY

Version: 22.0 Date: 11-18-11

REVISED PER ED SNC340661W001, VER. 1.0

BY	CHK'D	APPR	
JJB	RAW	AAN	SEE MICROFILM FOR PREVIOUS REV. SIGNATURES.

EDWIN I. HATCH NUCLEAR PLANT UNIT No. 1
P & I D MOISTURE SEPARATOR AND HEATER DRAIN SYSTEM
SHEET 2

DRAWN	DESIGNED	LOCATION	DRAWING NUMBER	VERSION
MMH	None	10-502	H-11606	22.0
DATE 6-28-90	SCALE None			

DRAWING CATEGORY: CRITICAL