4/21/97

NOTE TO: NRC Document Control Desk
Mail Stop 0-5-D-24

FROM: Virgil Curley, Licensing Assistant
Operating Licensing Branch, R I

SUBJECT: OPERATOR LICENSING EXAMINATION ADMINISTERED ON January 20-24, 1997, AT Limerick Generating Station, Units 1 & 2. DOCKET #50-352 and 50-353

On January 20-24, 1997 Operator Licensing Examinations were administered at the referenced facility. Attached, you will find the following information for processing through NUDOCS and distribution to the NRC staff, including the NRC PDR:

Item #1 - a) Facility submitted outline and initial exam submittal, designated for distribution under RIDS Code A070.

b) As given operating examination, designated for distribution under RIDS Code A070.

Item #2 - Examination Report with the as given written examination attached, designated for distribution under RIDS Code IE42.

Initial Submission
Sample Plan / References

1996 - 1997

Initial License Exam

Limerick I and II

Sample Plan

Limerick Generating Station 12/03/96

A070

				Plant Generics		Plant Systems						Emergency/Abnormal Evolutions				
						Group 1		Group 2		Group 3		Group 1		Group 2		Group 3
				13%	17%	28%	23%	19%	13%	4%	4%	13%	26%	19%	17%	4%
	Reference	K&A		RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO
	0040.04	202001 K6.07	3.3					187	187							
	0050.09	216000 K3.07	3.9			169	169									
	0070.04	201001 K1.09	3.1			257			257							
	0080.06	201002 K4.02	3.5			192			192							
	0110.06b	204000 A2.01	3.2					199	199							
	0240.07	215004 K3.02	3.4			103	103									
	0330.03f	218000 K2.01	3.1			131	131									
	0340.15	206000 A1.06	3.7			219	219									
	0370.08g	203000 K4.10	3.9			223	223									
	0300.04	212000 K4.12	3.9			252	252									
	0380.08	217000 A4.02	3.9			262	262									
	C&TM 3.4.3	294001 K1.02	4.5	209	209											
AC	0450.09	290003 A3.01	3.3					231	231							
	0495.06	245000 K6.01	2.8					207	207							
	0510.09	271000 K3.02	3.3					266	266							
Sfty.	IS&H 3-9	294001 K1.07	3.6	229	229											
IX PWR	0640.02	262001 A2.06	2.7				274	274								
N	0400.05	203000 K4.13	3.7			222	222									
ed Space	IS&H 3-1	294001 K1.14	3.4	256	256											
S	0180.02	223002 K1.10	3.1			218	218									
SPRAY	0350.11	209000 A1.07	3.0			102	102									
S	TS 3.8.4.3	262002 SG.11	3.8						167							
	0750.03	233000 K1.02	2.9							258						
nergy	CATM 6.1	294001 K1.09	3.8	213	213											
S	0550.04	259002 K3.01	3.8			170	170									
	0250.09	215003 K4.02	4.0			101			101							
				4	4	*14*	12	*6*	9	*1*	0	*0*	0	*0*	0	*0*

WRITTEN EXAMINATION
NRC INITIAL EXAM

	Reference	K&A			Plant Generics 13% RO	Plant Generics 17% SRO	Plant Systems Group 1 28% RO	Plant Systems Group 1 23% SRO	Plant Systems Group 2 19% RO	Plant Systems Group 2 13% SRO	Plant Systems Group 3 4% RO	Plant Systems Group 3 4% SRO	Emergency/Abnormal Evolutions Group 1 13% RO	Emergency/Abnormal Evolutions Group 1 26% SRO	Emergency/Abnormal Evolutions Group 2 19% RO	Emergency/Abnormal Evolutions Group 2 17% SRO	Emergency/Abnormal Evolutions Group 3 4% RO
	0030.06	202001	A2.10	3.5					188	188							
	0095.03	201006	A3.01	3.1					193	193							
t	0130.09	223001	A1.07	3.2			265	265									
	HP-C-106	294001	K1.03	3.8	228	228											
gic	0590.04	241000	A1.01	3.8			211	211									
ay	0370.09	226001	K4.12	2.9				221	221								
	OT 105	295015	AK2.11	3.7									212	212			
VOR	OM-C-11.1/2	294001	K1.01	3.7	100	100											
C	0650.04	262001	K4.03	3.1				208	208								
	0260.11	215005	K3.07	3.2			190	190									
A	T 100	295006	AA2.05	4.6									142	142			
ours	A-40	294001	A1.03	3.7	128	128											
	0370.09d	205000	K4.02	3.7					241	241							
	OT 101	295010	AK3.02	3.4									162	162			
A	OT 102	295007	SG.11	4.1									168	168			
	OT 117	295015	AK2.04	4.0									189	189			
hange	A-3	294001	A1.02	4.2	275	275											
./EA	T 111	295031	EA1.08	3.8									143	143			
EA	T 117	295037	EK1.02	4.1									191	191			
	0270.11c	215005	A2.05	3.5			214	214									
HC/EA	OT 104	295014	AA1.07	4.0									157	157			
	MOD-C-7	294001	A1.11	4.3	230	230											
er./EA	GP-2	295014	AA2.02	3.9									159	159			
	0315.04	295025	EK2.04	3.9									173	173			
/EA	OT 100	295009	AA2.02	3.6									153	153			
					5	5	4	6	5	3	0	0	11	11	0	0	0

					Plant Generics		Plant Systems						Emergency/Abnormal Evolutions				
							Group 1		Group 2		Group 3		Group 1		Group 2		Group 3
					13%	17%	28%	23%	19%	13%	4%	4%	13%	26%	19%	17%	4%
	Reference	K&A			RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO
nt.	0140.03	223001	K4.04	3.5			240	240									
t	0190.08a	290001	K6.01	3.5				226	226								
nications	OM-C-4.1	294001	A1.04	3.2	129	129											
	0660.05c	262001	A4.03	3.2				259	259								
	0310.06	211000	A1.07	4.3			210	210									
A	ON 107	295022	AK2.03	3.4											233	233	
larms	OM-C-7.1	294001	A1.09	4.2	175	175											
VTR/EA	OT 116	295002	AK2.08	3.1											263	263	
CW/EA	OT 112	295001	AK3.02	3.7											99	99	
	0280.08	215002	A3.04	3.6					235	235							
EA	ON 113	295018	AK3.04	3.3											205	205	
evices	OM-C-7.2	294001	K1.07	3.6	196	196											
ir/EA	ON 119	295019	AA1.04	3.2											276	276	
EA	S52.1.B	295020	AK3.06	3.3											216	216	
S/EA	OT 110	295008	AK3.01	3.4											158	158	
/EA	OT 101	295012	AK2.02	3.6											227	227	
	C&TM 4.2	294001	K1.02	4.5	215	215											
ray/EA	T 102	295028	SG.12	3.8											160	160	
	E-2FD	295004	AK1.06	3.3											271	271	
ment/EA	T 102	295029	EK1.01	3.4											163	163	
A	T 103	295033	SG.11	4.0											154	154	
A	0710.04	295034	EK2.01	3.9											236	236	
/EA	ON 117	295018	AK3.02	3.3											238	238	
EA	0160.05	295020	AK2.02	2.6											220	220	
	0670.05	264000	K4.02	4.0			272	272									
					4	4	*3*	5	*3*	1	*0*	0	*0*	0	*15*	15	*0*

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					Plant Generics		Plant Systems						Emergency/Abnormal Evolutions				
							Group 1		Group 2		Group 3		Group 1		Group 2		Group 3
					13%	17%	28%	23%	19%	13%	4%	4%	13%	26%	19%	17%	4%
	Reference	K&A			RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO
od	0020.05	201003	K4.01	3.0								255					
m	0120.12a	239001	SG.11	3.3								270					
	0290.10	215001	K6.04	3.4								198					
EA	ERP 101	295023	AA2.05	4.6										177			
A	TS/GP	295023	SG.08	3.9										176			
A	ON 114	295005	AK2.04	3.3												171	
ASTE	0705.02c	268000	K1.01	2.6								273					
A	S51.8.B	295021	AA1.05	3.0												201	
EA	OT 104	295014	AK2.11	3.7										254			
MOS/EA	0130.07	295013	AK1.03	3.3										130			
WST/EA	T 235	295030	EA1.06	3.4										204			
A	0340.15	295007	AA1.02	3.7										152			
ons	E1	295003	AA2.02	4.3										251			
A	OT 101	295017	SG.10	3.8										268			
/EA	E10/20	295003	AK1.02	3.1										267			
	SE-6	295016	AK2.02	4.1										197			
A	ON 102	295017	AK2.09	2.9										269			
EA	0370.10	294024	EA1.11	4.2										172			
A	SE-1	295016	AA1.08	4.0										194			
Suct. Strn/EA	0370.10	295026	EK1.01	3.4										174			
/AC/EA	T 104	295038	EK2.01	3.4										150			
o	OM-L-10.1	294001	K1.16	3.8		225											
ure Use	OM-C-9.1	294001	A1.01	3.4		277											
)perability	OM-C-7.5	294001	A1.10	4.2		200											
uties	OM-L-3.2	294001	A1.03	3.7		146											
					0	4	*0*	0	*0*	0	*0*	4	*0*	15	*0*	2	*0*

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					Plant Generics		Plant Systems						Emergency/Abnormal Evolutions				
							Group 1		Group 2		Group 3		Group 1		Group 2		Group 3
					13%	17%	28%	23%	19%	13%	4%	4%	13%	26%	19%	17%	4%
	Referer	K&A			RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO
	0010.08	290002	SG.04	3.2							224						
tm	0120.09b	239001	K4.09	3.3					278								
	0290.09	215001	A1.04	2.0 *							195						
nin/EA	OT 100	295009	SG.10	4.2									141				
Press	T102	295024	SG.12	3.9									161				
	E10/20	295003	AK2.01	3.2											253		
A	SE-1	295016	AA1.04	3.1											98		
	060.04	201003	K4.06	2.6					260								
ste	0705.02	268000	K3.04	2.7							279						
F.C.	0040.08c	202002	K1.02	4.2			237										
pray	0370.09b	230000	K4.03	3.5					242								
	0540.14b	259001	A2.03	3.6			280										
ooling	0370.03c	219000	A2.06	2.7					243								
urb	0560.07	245000	A4.07	2.9					156								
S	0180.06h	223002	K3.10	2.9			264										
	0733.05	261000	K4.02	2.6			217										
	0680.06	264000	A3.06	3.1			261										
	0160.05	223001	A4.10	3.2			203										
	0150.6d	223001	K6.01	3.6			232										
A	ON 121	295021	AA1.02	3.5													149
1/EA	ON 111	295035	EK1.01	3.9													145
EA	SCC/T	295032	EK2.01	3.5													202
EA	SCC/L	295036	EK3.04	3.1													206
EA	T 102	295030	EK3.07	3.5											234		
NT/EA	T 104	295038	EK2.03	3.6											155		
					0	0	7	0	5	0	3	0	2	0	4	0	4

or Task Despite Low IF

CAT A - Administrative Tasks

				A.1		A.2		A.3		A.4	
	Reference	K&A		RO	SRO	RO	SRO	RO	SRO	RO	SRO
dling	FH-105	234000 A1.03	3.4	0001 (AJ)							
ameters	RE-C-20	294001 A1.15	3.2	0002 (AJ)							
EST)	OM-C-10.6	294001 K1.02	3.9			0003 (AJ)					
l Montrng.	GETCM-10400	294001 K1.03	3.3					0004 (AJ)			
cy Comm.	ERP 110	294001 A1.16	2.9							0005 (AJ)	
dling	ST-6-097-630-*	234000 KA.11	3.9		0006 (AJ)						
rol	A-C-8	294001 K1.01	3.7		0007 (AJ)						
AID	M-16	294001 A1.07	4.3				0008 (AJ)				
l Montrng.	GETCM-10400	294001 K1.03	3.8						0009 (AJ)		
sification	ERP-101	294001 A1.16	4.7						0010		
ermination	ERP-101	294001 A1.16	4.7						0011		

FOOTNOTES:

ninistrative JPM

CAT B - Control Rm Sys / Walkthrough - JPMs

				B.1		B.2		
	Reference	K&A		RO	SRO	RO	SRO	FOOTNOTES
	SF 1	202002 A4.07	3.3	0012				A1, B8
	SF 2	259001 A4.02	3.9	0007				A2
m	SF 3	241000 A2.05	3.8	0519				D, H, A3
	SF 4	206000 A4.12	4.0	0520				H, A4, B7
	SF 5	290001 A3.01	3.9	0022				K, A5
	SF 1	295037 EA1.04	4.5	0516				G, D, B[illegible]
uel)	SF 8	234000 A4.01	3.7	0521				E, H, A6, [illegible]4
	SF 9	295032 EA1.03	3.7			0214		G, F, A7, B9
	SF 7	212000 A4.17	4.1			0210		G, F
	SF 2	295037 EA1.11	3.5			0216		G,F
	SF 7	212000 A1.11	3.3		0003			D, K, A6, B3
	SF 9	290003 A4.01	3.2		0023			K, J
	SF 6	264000 A4.04	3.7		0027			A5
	SF 2	217000 A2.10	3.1		0002			D, A2, J, B7
	SF 3	239001 A4.09	3.9		0518			H, A3, B4, J
	SF 1	202002 A4.07	3.2		0011			B8
	SF 5	219000 A4.05	3.4		0010			
	SF 5	295036 EA1.01	3.3				0215	F, G, A4, J, B9
	SF 8	234000 A3.02	3.7				0230	E, F, A7, J
	SF 1	201001 KA.09	3.4				0236	H, F, A1

FOOTNOTES:

erent SF Systems
age of 10CFR55.45 (a) (3), (4), (7), (8), (9) items
Candidates in Package 1
andidates in Package 2
ate Path Requirement

E - Low Power/Shutdown Requirement
F - Escort to RCA Requirement
G - E/A Requirement
H - New JPM
J - Administer to SRO (U)
K - ESF

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CAT B - Control Rm Sys / Walkthrough - RO Questions

	Reference	K&A			B.1 RO	B.1 SRO	B.2 RO	B.2 SRO
)C	LOT0030.08C	202001	K1.18	3.3	105			
	LOT0040.08C	202002	A2.01	3.4	107			
m	LOT0530.06	256000	A2.08	3.1	95			
	LOT0550.11A	259002	K4.04	2.9	97			
	LOT0560.09J	241000	K4.05	3.7	139			
	LOT0590.02F	241000	K3.15	2.8	132			
	LOT0340.07	206000	K5.01	3.3	109			
	LOT0340.14	206000	K2.01	3.2	110			
	LOT0730.11	202001	A2.18	2.9	111			
	LOT0200.08F	295032	EK2.02	3.6	112			
	LOT0310.03B	211000	K1.03	2.5	96			
	LOT0315.03D	295037	EK2.02	4.0	104			
	LOT0760.07	234000	A3.02	3.1	121			
	ST-6-107-591	216000	SG.05	3.3	120			
	LOT0200.04	290001	K1.04	3.7			137	
	LOT0200.05	290001	A4.05	3.3			140	
	LOT0070.02I	201001	K4.04	3.6			179	
	LOT0070.05A	201001	K2.05	4.5			178	
	LOT0370.12B	205000	A1.02	3.3			116	
	LOT0370.12B	203000	A4.02	4.1			115	

CAT B - Control Rm Sys / Walkthrough - SRO Questions

	Reference	K&A		B.1 RO	B.1 SRO	B.2 RO	B.2 SRO
	T217	295015 AA1.02	4.2		138		
	LOT0300.04	212000 A2.03	3.5		136		
C	LOT0450.07	290003 K4.01	3.2		133		
AS	LOT0450.05	290003 K5.01	3.5		134		
	S92.8.A	262001 A4.03	3.4		180		
	ST-6-092-365	264000 SG.11	4.1		182		
	LOT0050.07	216000 A2.12	2.9		186		
	LOT0380.07	217000 A2.16	3.4		185		
EAM	ST-6-001-761	239001 A1.10	3.8		147		
EAM	ST-6-001-760	239001 K4.01	3.8		148		
	LOT0040.08C	202001 A2.06	3.8		108		
	LOT0030.07	202001 A2.23	3.2		106		
	LOT0680.04	295018 AK2.02	3.6		135		
	LOT0400.07	264000 K1.04	3.3		119		
STE	LOT0705.04	268000 A1.02	3.6				181
ONT.	LOT0190.08A	290001 K6.01	3.6				184
	LOT0750.07	233000 K3.02	3.2				113
	LOT0760.07	234000 K4.01	4.1				114
	LOT0070.05	201001 A1.05	3.4				183
	LOT0060.09	201001 K3.03	3.2				164

1996 LGS
OPERATING EXAMINATION
NRC INITIAL EXAM
CAT-C SCENARIOS

Scenario # 2A(B)
Initial Setup Characteristics
- 95% Power TCV test complete
- Waiting PSD call within 30 minutes to raise power to 100%

K/A Number	Event	Evolution Type
295035 EA1.01	1C RE Exhaust Fan blade pitch fails - Loss of d/P	1 component for PRO
202002 A4.04	Raise Power to 100%	1 normal for PRO
215005 A3.03	APRM Fails at 50% Power Indication	1 instrument for RO
202001 A2.22 202001 A2.03	Loss of cooling water to "A" Recirc Pump MG/Recirc Pump Trip	1 component for PRO
201002 A1.04	Insert rods per RMSI	1 reactivity for RO
256000 A2.06	Loss of Condensate from Hotwell Leak	1 major (All)
259001 A4.07	Rx FW Line Break Outside of Containment	1 major (All)
223002 A4.01	HPCI Steam Leak to Secondary Containment (Unisolable)	1 major (All)
216000 A2.08	"B" Reference Leg defect prevents DIV2 LOCA signal at -129"	1 instrument for PRO
295031 EA1.10	CRD Pump Trip	1 component for RO
295031 EA1.01	Loss of HP Feed	1 major (All)

1996 LGS
OPERATING EXAMINATION
NRC INITIAL EXAM
CAT-C SCENARIOS

cenario # 1A(B)

itial Setup Characteristics

- One (1) Circ. Water Pump is out of service
- 1B RFP operating on MSC to support troubleshooting

K/A Number	Event	Evolution Type
59001 A4.02	Swap RFP from MSC to MGU in auto	1 normal for RO
86000 SG.08	Fire in Circ Water Pump	1 component for PRO
95002 AK3.09	Power reduction due to vacuum problem	1 reactivity for RO
59001 A2.07	1B RFP swap from AUTO to MAN during power reduction	1 instrument for RO
86000 A4.05	MCR start of MDFP to support Fire	1 normal for PRO
39002 A2.03	SRV opens and closes	1 component for PRO
295024 EK3.04	Steam Leak in DW	part of major for all
214000 A2.02	3 rods fail to scram	1 component for RO
230000 A2.01	Suction strainer clogging	1 component for PRO
295028 EK3.01	Emergency Blowdown	part of major for all
216000 K5.13 295024 EK3.05	RPV Flooding / Reference Legs Flash	part of major for all

1996 LGS
OPERATING EXAMINATION
NRC INITIAL EXAM
CAT-C SCENARIOS

:enario # 3A(B)
itial Setup Characteristics
- 50% Power
- "1C" RFP DTO for maintenance

K/A Number	Event	Evolution Type
94001 A1.02	Secure 1A ESW Pump	1 normal PRO
01003 A1.01	Power reduction to take turbine off	1 reactivity RO
95001 A2.07	Steam flow trans fails high	1 instrument RO
62002 K3.10	1AY160 fails (RPS UPS 120 VAC Distribution Panel)	1 component PRO
02001 A2.17	129 A&B fail closed (Inst. Gas to the Drywell)	1 component PRO
39002 A4.01 95013 AA1.01 95021 EA1.01	ATWS RDCS 120 rods, SLC fails, T-251, sparger closed	1 major All
259001 A2.01	1A RFP L.O. Leak	1 component RO
259001 A4.04	1B RFP w/ HP steam valve closed	1 component RO
272000 A2.16	When in S/P cooling, the HX rad monitor fails.	1 instrument PRO

CTRICAL POWER SYSTEMS

CTOR PROTECTION SYSTEM ELECTRICAL POWER MONITORING

ITING CONDITION FOR OPERATION

.4.3 Two reactor protection system (RPS) electric power monitoring channels each inservice RPS Inverter or alternate power supply shall be OPERABLE.

LICABILITY: At all times.

ION:

a. With one RPS electric power monitoring channel for an inservice RPS Inverter or alternate power supply inoperable, restore the inoperable power monitoring channel to OPERABLE status within 72 hours or remove the associated RPS Inverter or alternate power supply from service.

b. With both RPS electric power monitoring channels for an inservice RPS Inverter or alternate power supply inoperable, restore at least one electric power monitoring channel to OPERABLE status within 24 hours or remove the associated RPS Inverter or alternate power supply from service.

EILLANCE REQUIREMENTS

4.3 The above specified RPS electric power monitoring channels shall be rmined OPERABLE:

a. By performance of a CHANNEL FUNCTIONAL TEST each time the plant is in COLD SHUTDOWN for a period of more than 24 hours, unless performed in the previous 6 months.

b. At least once per 24 months by demonstrating the OPERABILITY of overvoltage, undervoltage, and underfrequency protective instrumentation by performance of a CHANNEL CALIBRATION including simulated automatic actuation of the protective relays, tripping logic, and output circuit breakers and verifying the following setpoints.

   1. Overvoltage $\leq$ 132 VAC,

   2. Undervoltage $\geq$ 109 VAC,

   3. Underfrequency $\geq$ 57 Hz.

TRICAL POWER SYSTEMS

TOR PROTECTION SYSTEM ELECTRICAL POWER MONITORING

TING CONDITION FOR OPERATION

4.3 Two reactor protection system (RPS) electric power monitoring channels each inservice RPS Inverter or alternate power supply shall be OPERABLE.

ICABILITY: At all times.

ON:

a. With one RPS electric power monitoring channel for an inservice RPS Inverter or alternate power supply inoperable, restore the inoperable power monitoring channel to OPERABLE status within 72 hours or remove the associated RPS Inverter or alternate power supply from service.

b. With both RPS electric power monitoring channels for an inservice RPS Inverter or alternate power supply inoperable, restore at least one electric power monitoring channel to OPERABLE status within 24 hours or remove the associated RPS Inverter or alternate power supply from service.

:ILLANCE REQUIREMENTS

:.3 The above specified RPS electric power monitoring channels shall be mined OPERABLE:

a. By performance of a CHANNEL FUNCTIONAL TEST each time the plant is in COLD SHUTDOWN for a period of more than 24 hours, unless performed in the previous 6 months.

b. At least once per 24 months by demonstrating the OPERABILITY of overvoltage, undervoltage, and underfrequency protective instrumentation by performance of a CHANNEL CALIBRATION including simulated automatic actuation of the protective relays, tripping logic, and output circuit breakers and verifying the following setpoints.

1. Overvoltage ≤ 132 VAC,

2. Undervoltage ≥ 109 VAC,

3. Underfrequency ≥ 57 Hz.

.F-TEST: OK		SEQUENCE: A1 BPWS	MODE: OPERATE
)CKS: INSERT WITHDRAW		STEP: 145	POWER: BELOW LPSP

SR 22 - 11 : 08

WE 26 - 15 : 12

I E 34 - 19 : 14

SE IB WB

A1 - 145

IE 02-23:12
IE 30-27:24

HELP

DISPLAY OFF

ETC

QUESTION 48 REFERENCE

PECO ENERGY COMPANY
ESTIMATED CRITICAL PREDICTION
LIMERICK UNIT 1 CYCLE 7

Prepared by: K. X. Young
Reviewed by: L.a. Marchelle
Approved by: A. C. Storey

ESTIMATED CRITICAL POSITIONS

Startup: 3/96 *Cycle Exposure: 513 MWd/stu*

	Moderator Temperature (°F)				
0%	68	150	175	200	250
	Step 28 34 - 55 position 18	Step 35 18 - 47 position 48	Step 39 42 - 31 position 48	Step 46 38-59 position 04	Step 70 38 - 59 position 08

	Moderator Temperature (°F)				
inal	68	150	175	200	250
tical	Step 93 22 - 59 position 12	Step 104 14 - 11 position 12	Step 105 30 - 51 position 10	Step 105 30-51 position 10	Step 117 22 - 59 position 48

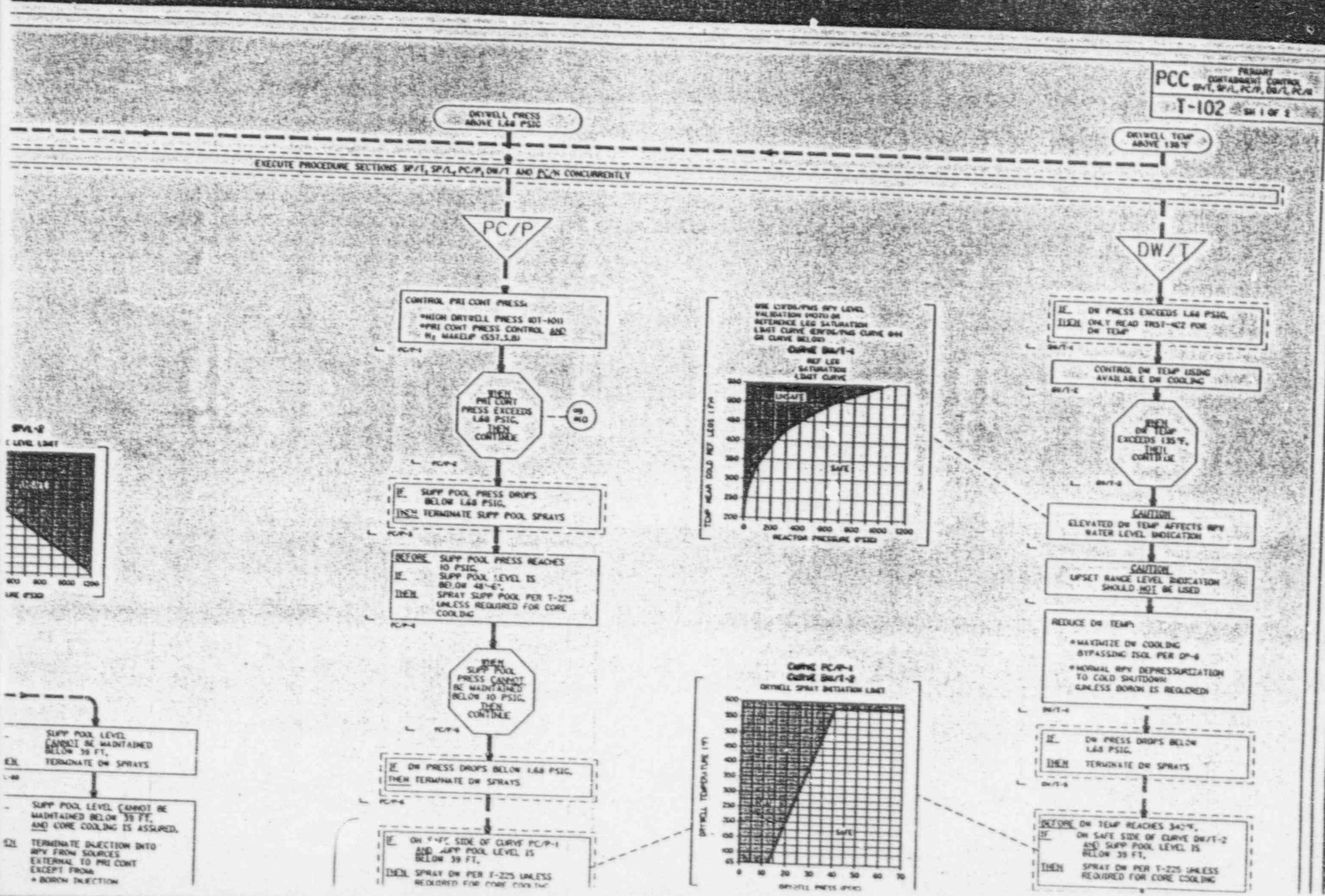
	Moderator Temperature (°F)				
1.0%	68	150	175	200	250
	Step 129 30 - 51 position 16	Step 129 30 - 51 position 20	Step 129 30 - 51 position 24	Step 132 46-35 position 12	Step 160 30 - 19 position 04

HIGH WORTH STEPS

following RWM steps exhibited high worth, as noted:

Step	1	00 to 48	0.0128 Δk
Step	3	00 to 48	0.0025 Δk
Step	5	00 to 48	0.0175 Δk
Step	13	00 to 48	0.0020 Δk
Step	25	00 to 48	0.0048 Δk
Step	28	00 to 48	0.0078 Δk
Step	81	04 to 08	0.0026 Δk
Step	93	08 to 12	0.0010 Δk
Step	105	08 to 12	0.0031 Δk
Step	125	12 to 48	0.0013 Δk
Step	129	12 to 48	0.0043 Δk

REMEMBER: THESE ARE CALCULATED VALUES WHICH DO NOT ACCOUNT FOR PROXIMITY TO SRMs. ADDITIO STEPS MAY HAVE LARGE RESPONSES

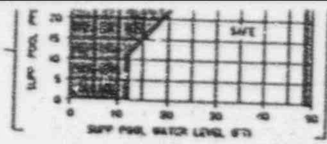

PCC
PRIMARY CONTAINMENT CONTROL SP/T, SP/L, PC/P, DW/T, PC/H
T-102 SH 1 OF 2
DRYWELL PRESS ABOVE 1.68 PSIG
DRYWELL TEMP ABOVE 135°F
EXECUTE PROCEDURE SECTIONS SP/T, SP/L, PC/P, DW/T AND PC/H CONCURRENTLY
PC/P
CONTROL PRI CONT PRESS:
*HIGH DRYWELL PRESS (OT-101)
*PRI CONT PRESS CONTROL AND H2 MAKEUP (SS7.5.8)
WHEN PRI CONT PRESS EXCEEDS 1.68 PSIG, THEN CONTINUE
IF SUPP POOL PRESS DROPS BELOW 1.68 PSIG, THEN TERMINATE SUPP POOL SPRAYS
BEFORE SUPP POOL PRESS REACHES 10 PSIG, IF SUPP POOL LEVEL IS BELOW 48'-6", THEN SPRAY SUPP POOL PER T-225 UNLESS REQUIRED FOR CORE COOLING
WHEN SUPP POOL PRESS CANNOT BE MAINTAINED BELOW 10 PSIG, THEN CONTINUE
IF DW PRESS DROPS BELOW 1.68 PSIG, THEN TERMINATE DW SPRAYS
IF DW SAFE SIDE OF CURVE PC/P-1 AND SUPP POOL LEVEL IS BELOW 39 FT, THEN SPRAY DW PER T-225 UNLESS REQUIRED FOR CORE COOLING
SUPP POOL LEVEL CANNOT BE MAINTAINED BELOW 39 FT, TERMINATE DW SPRAYS
SUPP POOL LEVEL CANNOT BE MAINTAINED BELOW 39 FT, AND CORE COOLING IS ASSURED, TERMINATE INJECTION INTO RPV FROM SOURCES EXTERNAL TO PRI CONT EXCEPT FROM: * BORON INJECTION
SP/L-2
CURVE DW/T-1
REF LEG SATURATION LIMIT CURVE
UNSAFE
SAFE
TEMP NEAR COLD REF LEGS (°F)
REACTOR PRESSURE (PSIG)
CURVE PC/P-1
CURVE DW/T-2
DRYWELL SPRAY INITIATION LIMIT
DRYWELL TEMPERATURE (°F)
DRYWELL PRESS (PSIG)
DW/T
IF DW PRESS EXCEEDS 1.68 PSIG, THEN ONLY READ TRST-4C2 FOR DW TEMP
CONTROL DW TEMP USING AVAILABLE DW COOLING
WHEN DW TEMP EXCEEDS 135°F, THEN CONTINUE
CAUTION
ELEVATED DW TEMP AFFECTS RPV WATER LEVEL INDICATION
CAUTION
UPSET RANGE LEVEL INDICATION SHOULD NOT BE USED
REDUCE DW TEMP:
*MAXIMIZE DW COOLING BYPASSING ISOL PER OP-6
*NORMAL RPV DEPRESSURIZATION TO COLD SHUTDOWN UNLESS BORON IS REQUIRED
IF DW PRESS DROPS BELOW 1.68 PSIG, THEN TERMINATE DW SPRAYS
BEFORE DW TEMP REACHES 340°F, IF DW SAFE SIDE OF CURVE DW/T-2 AND SUPP POOL LEVEL IS BELOW 39 FT, THEN SPRAY DW PER T-225 UNLESS REQUIRED FOR CORE COOLING

TERMINATE INJECTION INTO RPV AND PRI CONT FROM SOURCES EXTERNAL TO PRI CONT REGARDLESS OF CORE COOLING

CANNOT BE MAINTAINED, THEN CONTINUE

ENTER T-112 AND EXECUTE CONCURRENTLY

EMERGENCY BLOWDOWN T-112 EB-1

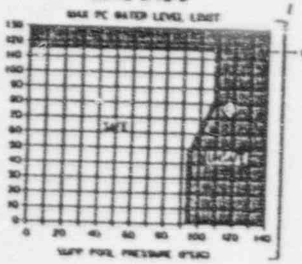


ENTER T-112 AND EXECUTE CONCURRENTLY

EMERGENCY BLOWDOWN T-112 EB-1

CURVE SP/L-3

MAX PC WATER LEVEL LIMIT



CONTAINMENT LEVEL IN FEET

	______	PSIG SUPP POOL PRESS ON PR57-401 BLUE PEN
MINUS (-)	______	PSIG PRI CONT PRESS ON PR57-401 RED PEN
EQUALS (=)	______	Δ PSIG
TIMES (X)	2.3	FT/PSIG
EQUALS (=)	______	FT
PLUS (+)	26.8	FT
EQUALS (=)	______	FT CONTAINMENT LEVEL

BEFORE ENTERING UNSAFE SIDE OF CURVE PC/P-3,
THEN VENT PRI CONT PER T-200 TO MAINTAIN PRESS ON SAFE SIDE OF CURVE PC/P-3 **REGARDLESS** OF OFFSITE RELEASE RATE

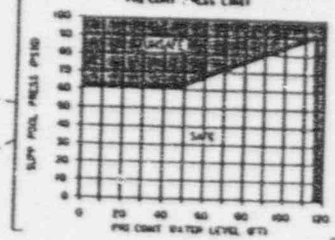
WHEN SAFE SIDE OF CURVE PC/P-3 CANNOT BE MAINTAINED, THEN CONTINUE

IF SUPP POOL LEVEL IS BELOW 48'-6"
THEN SPRAY SUPP POOL PER T-225 **REGARDLESS** OF CORE COOLING

IF ON SAFE SIDE OF CURVE PC/P-1 AND SUPP POOL LEVEL IS BELOW 39 FT,
THEN SPRAY DW PER T-225 **REGARDLESS** OF CORE COOLING

CURVE PC/P-3

PRI CONT PRESS LIMIT

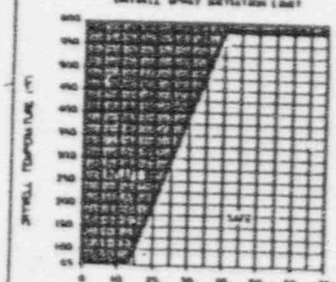


CONTAINMENT LEVEL IN FEET

	______	PSIG SUPP POOL PRESS ON PR57-401 BLUE PEN
MINUS (-)	______	PSIG PRI CONT PRESS ON PR57-401 RED PEN
EQUALS (=)	______	Δ PSIG
TIMES (X)	2.3	FT/PSIG
EQUALS (=)	______	FT
PLUS (+)	26.8	FT
EQUALS (=)	______	FT CONTAINMENT LEVEL

CURVE PC/P-1

DRYWELL SPRAY INITIATION LIMIT



Robert W. Boyce

APPROVED BY:	DATE 10/12/96	REV. 15
APPROVED BY: R.W. BOYCE	DATE 05/09/96	REV. 14
APPROVED BY: R.W. BOYCE	DATE 05/30/95	REV. 13
APPROVED BY: R.W. BOYCE	DATE 04/23/95	REV. 12
T-102	SH 1 OF 2	
PCC	PRIMARY CONTAINMENT CONTROL SP/T, SP/L, PC/P, DW/T, PC/H	
LIMERICK GENERATING STATION TRIP PROCEDURE		

0	200	400	600	800	1000	1200

RPV PRESSURE (PSIG)

WHEN SAFE SIDE OF CURVE SP/T-1 CANNOT BE MAINTAINED, **THEN** CONTINUE

SP/T-6

ENTER T-112 AND EXECUTE CONCURRENTLY → EMERGENCY BLOWDOWN T-112 EB-1

SP/T-5

IF SUPP POOL LEVEL DROPS BELOW 13.5 FT,
THEN LINE UP FOR INJECTION SYSTEMS WHICH TAKE SUCTION FROM SOURCES EXTERNAL TO PRI CONT

(45)

SP/L-4

IF SUPP POOL PRESS DROPS BELOW 1.68 PSIG,
THEN TERMINATE SUPP POOL SPRAYS

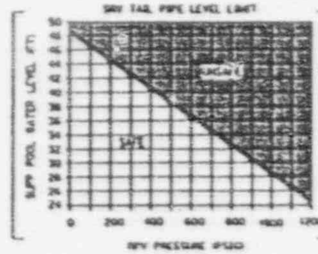
SP/L-5

SPRAY SUPP POOL PER T-225 UNLESS REQUIRED FOR CORE COOLING

SP/L-10

CURVE SP/L-2

SRV TAIL PIPE LEVEL LIMIT



DEPRESSU... TO STAY ON S... CURVE

SP/L-6

SAFE ... OF CURVE ... BE MAIN...

SP/L-16

SP/L-18

IF CORE COOLI...
THEN TERMINATE ... RPV FROM ... EXTERNAL ... EXCEPT FRO... + BORON IN... SYSTEMS + CRD

SP/L-17

SAFE ... OF CURVE ... BE MAIN...

SP/L-16

SP/L-18

ENTER ... AND EXECUTE CO...

SP/L-19

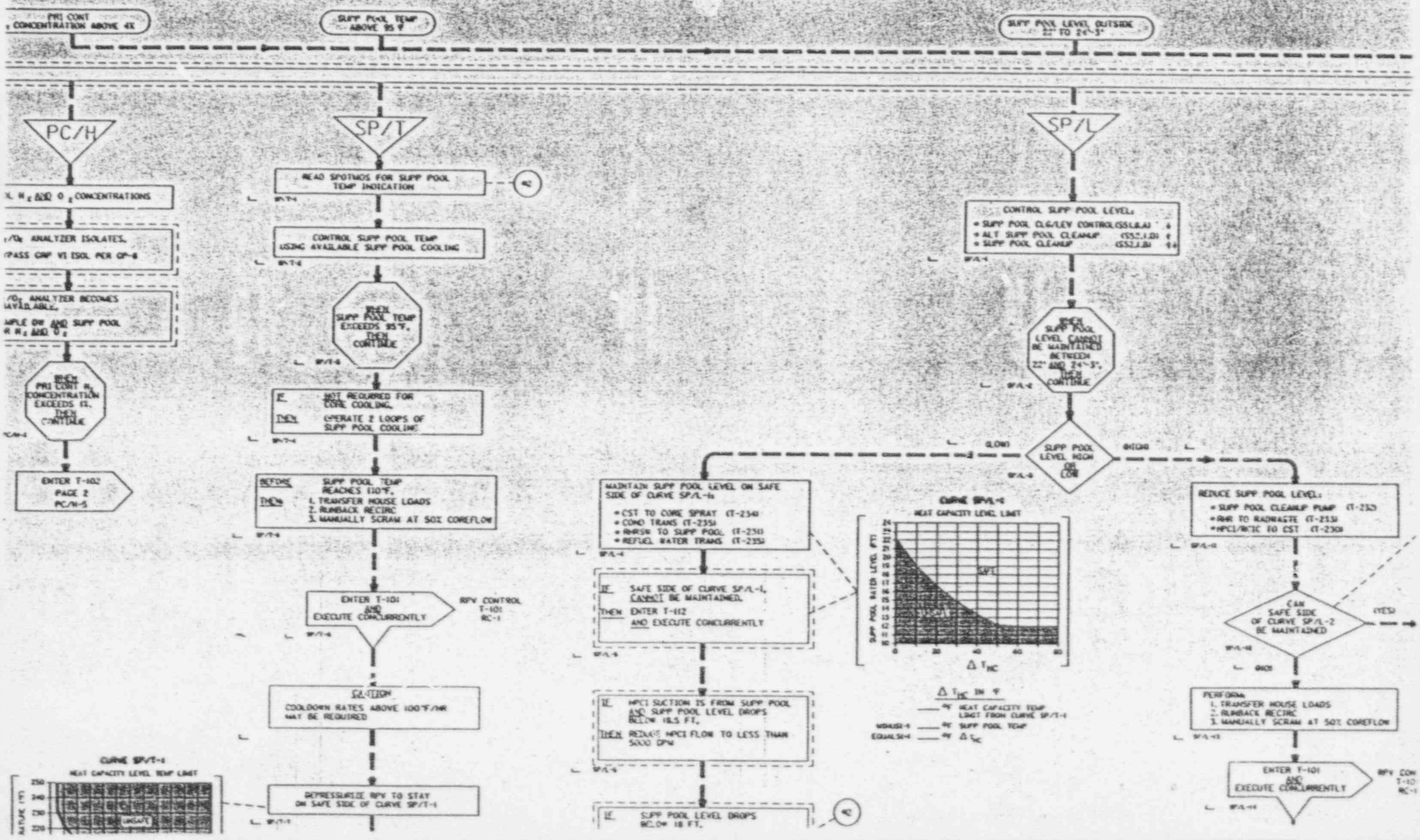
NOTES

(42) SPOTMOS PROBES LOCATED AT SUPP POOL LEVEL OF 17 FT 10 IN RHR SUCTION TEMP WITH RHR OPERATING BELOW 17.8 FEET IS VALID SUPP POOL TEMP

(45) SUPPRESSION POOL LEVEL OF 13.5 FEET REPRESENTS THE MINIMUM LEVEL FOR NPSH AND VORTEX LIMITS FOR CORE SPRAY AND RHR PUMPS

(48) **WHEN** OFFSITE POWER, RPV AND DW CONDITIONS PERMIT AND DIESEL OPERATION IS NO LONGER REQUIRED,
THEN CONSIDER RETURNING DIESEL GENERATORS TO STANDBY

(410) **IF** LOCA INITIATION OCCURS (CORE SPRAY AUTO START),
THEN SE-10 DIRECTS ADDITIONAL OPERATOR ACTIONS


PRI CONT H_2 CONCENTRATION ABOVE 4%
SUPP POOL TEMP ABOVE 95°F
SUPP POOL LEVEL OUTSIDE 22' TO 24'-3"
PC/H
SP/T
SP/L
H_2 AND O_2 CONCENTRATIONS
H_2/O_2 ANALYZER ISOLATES, BYPASS GRP VI ISOL PER OP-8
H_2/O_2 ANALYZER BECOMES UNAVAILABLE, SAMPLE DW AND SUPP POOL FOR H_2 AND O_2
WHEN PRI CONT H_2 CONCENTRATION EXCEEDS 1%, THEN CONTINUE
ENTER T-102 PAGE 2 PC/H-5
READ SPOTMOS FOR SUPP POOL TEMP INDICATION
CONTROL SUPP POOL TEMP USING AVAILABLE SUPP POOL COOLING
WHEN SUPP POOL TEMP EXCEEDS 95°F, THEN CONTINUE
IF NOT REQUIRED FOR CORE COOLING, THEN OPERATE 2 LOOPS OF SUPP POOL COOLING
BEFORE SUPP POOL TEMP REACHES 110°F, THEN 1. TRANSFER HOUSE LOADS 2. RUNBACK RECIRC 3. MANUALLY SCRAM AT 50% COREFLOW
ENTER T-101 AND EXECUTE CONCURRENTLY
RPV CONTROL T-101 RC-1
CAUTION COOLDOWN RATES ABOVE 100°F/HR MAY BE REQUIRED
REPRESSURIZE RPV TO STAY ON SAFE SIDE OF CURVE SP/T-1
CURVE SP/T-1 HEAT CAPACITY LEVEL TEMP LIMIT
UNSAFE
CONTROL SUPP POOL LEVEL: • SUPP POOL CLG/LEV CONTROL (SS1.8.A) • ALT SUPP POOL CLEANUP (SS2.1.D) • SUPP POOL CLEANUP (SS2.1.B)
WHEN SUPP POOL LEVEL CANNOT BE MAINTAINED BETWEEN 22' AND 24'-3", THEN CONTINUE
SUPP POOL LEVEL HIGH OR LOW
(LOW)
(HIGH)
MAINTAIN SUPP POOL LEVEL ON SAFE SIDE OF CURVE SP/L-4: • CST TO CORE SPRAY (T-234) • COND TRANS (T-235) • RHRSW TO SUPP POOL (T-231) • REFUEL WATER TRANS (T-235)
IF SAFE SIDE OF CURVE SP/L-4, CANNOT BE MAINTAINED, THEN ENTER T-112 AND EXECUTE CONCURRENTLY
IF HPCI SUCTION IS FROM SUPP POOL AND SUPP POOL LEVEL DROPS BELOW 18.5 FT, THEN REDUCE HPCI FLOW TO LESS THAN 5000 GPM
IF SUPP POOL LEVEL DROPS BELOW 18 FT,
CURVE SP/L-4 HEAT CAPACITY LEVEL LIMIT
SUPP POOL WATER LEVEL (FT)
SAFE
UNSAFE
ΔT_{HC}
ΔT_{HC} IN °F
°F HEAT CAPACITY TEMP LIMIT FROM CURVE SP/T-1
MINUS °F SUPP POOL TEMP
EQUALS °F ΔT_{HC}
REDUCE SUPP POOL LEVEL: • SUPP POOL CLEANUP PUMP (T-232) • RHR TO RADWASTE (T-233) • HPCI/RCIC TO CST (T-230)
CAN SAFE SIDE OF CURVE SP/L-2 BE MAINTAINED
(YES)
(NO)
PERFORM: 1. TRANSFER HOUSE LOADS 2. RUNBACK RECIRC 3. MANUALLY SCRAM AT 50% COREFLOW
ENTER T-101 AND EXECUTE CONCURRENTLY
RPV CON T-101 RC-1

Written By: [illegible]

t LIMERICK GENERATING STATION Date 1/26/94 Reviewed By: [illegible] 2/3/94

le 1R05 CONTROL ROD REPLACEMENT Authorized By: [illegible] 2/3/94

NO.	COMPONENT SERIAL NO.	MOVE FROM	ORIENT	MOVE TO	ORIENT	FHD	RPO	CRO	SRM COUNTRATE A	B	C	D	DATE	TIME
	VERIFY CONTROL ROD 30-47 IS UNCOUPLED								N/A	N/A	N/A	N/A		
	DBL B/G	31-48/29-46	NONE	HANG MN HOIST	NONE				N/A	N/A	N/A	N/A		
	SUP PC	30-47	NW	HANG HOIST	NONE				N/A	N/A	N/A	N/A		
	IF CRD EXCHANGE IN PROGRESS, THEN													
A	INFORM UNDERVESSEL TEAM OF INTENT TO REMOVE CRB								N/A	N/A	N/A	N/A		
B	RAISE CRB 30-47 APPROXIMATELY 12 INCHES								N/A	N/A	N/A	N/A		
C	RECEIVE CONFIRMATION FROM UNDERVESSEL TO CONTINUE,								N/A	N/A	N/A	N/A		
	OTHERWISE, N/A STEPS A, B, & C.								N/A	N/A	N/A	N/A		

OLANT SYSTEM

SAFETY/RELIEF VALVES

ONDITION FOR OPERATION

safety valve function of at least 11 of the following reactor coolant system ief valves shall be OPERABLE with the specified code safety valve function lift #

safety/relief valves @ 1170 psig ±1%
safety/relief valves @ 1180 psig ±1%
safety/relief valves @ 1190 psig ±1%

TY: OPERATIONAL CONDITIONS 1, 2, and 3.

With the safety valve function of one or more of the above required safety/relief valves inoperable, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.

With one or more safety/relief valves stuck open, provided that suppression pool average water temperature is less than 105°F, close the stuck open safety/relief valve(s); if unable to close the stuck open valve(s) within 2 minutes or if suppression pool average water temperature is 110°F or greater, place the reactor mode switch in the Shutdown position.

With one or more safety/relief valve acoustic monitors inoperable, restore the inoperable acoustic monitors to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

REQUIREMENTS

The acoustic monitor for each safety/relief valve shall be demonstrated OPERABLE point verified to be 0.20 of the full open noise level## by performance of a:

CHANNEL FUNCTIONAL TEST at least once per 92 days, and a
CHANNEL CALIBRATION at least once per 24 months**.

At least 1/2 of the safety relief valves shall be removed, set pressure tested led or replaced with spares that have been previously set pressure tested and cordance with manufacturer's recommendations at least once per 24 months, and rotated such that all 14 safety relief valves are removed, set pressure einstalled or replaced with spares that have been previously set pressure tored in accordance with manufacturer's recommendations at least once per 54

---

t setting pressure shall correspond to ambient conditions of the at nominal operating temperatures and pressures.
visions of Specification 4.0.4 are not applicable provided the lance is performed within 12 hours after reactor steam pressure is e to perform the test.
inoperable valves may be replaced with spare OPERABLE valves with etpoints until the next refueling.
setting shall be in accordance with the manufacturer's ndation. Adjustment to the valve full open noise level e accomplished during the startup test program.

4.4.2 SAFETY/RELIEF VALVES

MITING CONDITION FOR OPERATION

4.2 The safety valve function of at least 11 of the following reactor coolant system ıfety/relief valves shall be OPERABLE with the specified code safety valve function lift ettings:*#

4 safety/relief valves @ 1170 psig ±1%
5 safety/relief valves @ 1180 psig ±1%
5 safety/relief valves @ 1190 psig ±1%

PLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

TION:

a. With the safety valve function of one or more of the above required safety/relief valves inoperable, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.

b. With one or more safety/relief valves stuck open, provided that suppression pool average water temperature is less than 105°F, close the stuck open safety/relief valve(s); if unable to close the stuck open valve(s) within 2 minutes or if suppression pool average water temperature is 110°F or greater, place the reactor mode switch in the Shutdown position.

c. With one or more safety/relief valve acoustic monitors inoperable, restore the inoperable acoustic monitors to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

URVEILLANCE REQUIREMENTS

.4.2.1 The acoustic monitor for each safety/relief valve shall be demonstrated OPERABLE ith the setpoint verified to be 0.20 of the full open noise level## by performance of a:

a. CHANNEL FUNCTIONAL TEST at least once per 92 days, and a
b. CHANNEL CALIBRATION at least once per 24 months**.

.4.2.2 At least 1/2 of the safety relief valves shall be removed, set pressure tested nd reinstalled or replaced with spares that have been previously set pressure tested and tored in accordance with manufacturer's recommendations at least once per 24 months, and hey shall be rotated such that all 14 safety relief valves are removed, set pressure ested and reinstalled or replaced with spares that have been previously set pressure ested and stored in accordance with manufacturer's recommendations at least once per 54 ıonths.

---

* The lift setting pressure shall correspond to ambient conditions of the valves at nominal operating temperatures and pressures.

** The provisions of Specification 4.0.4 are not applicable provided the Surveillance is performed within 12 hours after reactor steam pressure is adequate to perform the test.

\# Up to 2 inoperable valves may be replaced with spare OPERABLE valves with lower setpoints until the next refueling.

\## Initial setting shall be in accordance with the manufacturer's recommendation. Adjustment to the valve full open noise level shall be accomplished during the startup test program.

TABLE 4.3.7.4-1

REMOTE SHUTDOWN SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK *	CHANNEL CALIBRATION
1. Reactor Vessel Pressure	M	R
2. Reactor Vessel Water Level	M	R
3. Safety/Relief Valve Position, 3 valves	M	NA
4. Suppression Chamber Water Level	M	R
5. Suppression Chamber Water Temperature	M	R
6. Drywell Pressure	M	R
7. Drywell Temperature	M	R
8. RHR System Flow	M	R
9. RHR Service Water Pump Discharge Pressure	M	R
10. RHR Heat Exchanger Service Water Outlet Pressure	M	R
11. RCIC System Flow	M	R
12. RCIC Turbine Speed	M	R
13. Emergency Service Water Pump Discharge Pressure	M	R
14. Condensate Storage Tank Level	M	R
15. RHR Heat Exchanger Bypass Valve (HV-C-51-2F048A) Position Indication (0 - 100%)	M	R
16. RCIC Turbine Tripped Indication	M	R
17. RCIC Turbine Bearing Oil Pressure Low Indication	M	R
18. RCIC Bearing Oil Temperature High Indication	M	R
19. RHR Heat Exchanger Discharge Line High Radiation Indication	M	R

*Control is not required to be transferred to perform this CHANNEL CHECK.

ACCIDENT MONITORING INSTRUMENTATION

Refer to PORC Position # 51, 55

LIMITING CONDITION FOR OPERATION

3.3.7.5 The accident monitoring instrumentation channels shown in Table 3.3.7.5-1 shall be OPERABLE.

APPLICABILITY: As shown in Table 3.3.7.5-1.

ACTION:

With one or more accident monitoring instrumentation channels inoperable, take the ACTION required by Table 3.3.7.5-1.

SURVEILLANCE REQUIREMENTS

4.3.7.5 Each of the above required accident monitoring instrumentation channels shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3.7.5-1.

TABLE 3.3.7.5-1

ACCIDENT MONITORING INSTRUMENTATION

INSTRUMENT	REQUIRED NUMBER OF CHANNELS	MINIMUM CHANNELS OPERABLE	APPLICABLE OPERATIONAL CONDITIONS	ACTION
1. Reactor Vessel Pressure	2	1	1,2	80
2. Reactor Vessel Water Level	2	1	1,2	80
3. Suppression Chamber Water Level	2	1	1,2	80
4. Suppression Chamber Water Temperature	8, 6 locations	6, 1/location	1,2	80
5. Suppression Chamber Air Temperature	1	1	1,2	80
6. Drywell Pressure	2	1	1,2	80
7. Drywell Air Temperature	1	1	1,2	80
8. Drywell Oxygen Concentration Analyzer	2	1	1,2	80
9. Drywell Hydrogen Concentration Analyzer	2	1	1,2	80
10. Safety/Relief Valve Position Indicators	1/valve	1/valve	1,2	80
11. Primary Containment Post-LOCA Radiation Monitors	4	2	1,2,3	81
12. North Stack Wide Range Accident Monitor**	3*	3*	1,2,3	81
13. Neutron Flux	2	1	1,2	80

Refer to PORC Position # 51, 55

Refer to PORC Position # 51, 55

Table 3.3.7.5-1 (Continued)

ACCIDENT MONITORING INSTRUMENTATION

TABLE NOTATIONS

*Three noble gas detectors with overlapping ranges (10^{-7} to 10^{-1}, 10^{-4} to 10^{2}, 10^{-4} to 10^{5} μCi/cc).
**High range noble gas monitor.

ACTION STATEMENTS

ACTION 80 -

a. With the number of OPERABLE accident monitoring instrumentation channels less than the Required Number of Channels shown in Table 3.3.7.5-1, restore the inoperable channel(s) to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.

b. With the number of OPERABLE accident monitoring instrumentation channels less than the Minimum Channels OPERABLE requirements of Table 3.3.7.5-1, restore the inoperable channel(s) to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours.

ACTION 81 - With the number of OPERABLE accident monitoring instrumentation channels less than required by the Minimum Channels OPERABLE requirement, initiate the preplanned alternate method of monitoring the appropriate parameters within 72 hours, and

a. Either restore the inoperable channel(s) to OPERABLE status within 7 days of the event, or

b. Prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

3905067730

TABLE 4.3.7.5-1

ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION
1. Reactor Vessel Pressure	M	R
2. Reactor Vessel Water Level	M	R
3. Suppression Chamber Water Level	M	R
4. Suppression Chamber Water Temperature	M	R
5. Suppression Chamber Air Temperature	M	R
6. Primary Containment Pressure	M	R
7. Drywell Air Temperature	M	R
8. Drywell Oxygen Concentration Analyzer	M	Q#
9. Drywell Hydrogen Concentration Analyzer	M	Q*
10. Safety/Relief Valve Position Indicators	M	R
11. Primary Containment Post LOCA Radiation Monitors	M	R**
12. North Stack Wide Range Accident Monitor***	M	R
13. Neutron Flux	M	R

Refer to PORC Position # 51, 55

*Using calibration gas containing:
  a. Zero volume percent hydrogen, balance nitrogen.
  b. Five volume percent hydrogen, balance nitrogen.

**CHANNEL CALIBRATION shall consist of an electronic calibration of the channel, not including the detector, for range decades above 10 R/h and a one point calibration check of the detector below 10 R/h with an installed or portable gamma source.

***High range noble gas monitors.

#Using calibration gas containing:
  a. Zero volume percent oxygen, balance nitrogen.
  b. Five volume percent oxygen, balance nitrogen.

SOURCE RANGE MONITORS

LIMITING CONDITION FOR OPERATION

3.3.7.6 At least the following source range monitor channels shall be OPERABLE:

a. In OPERATIONAL CONDITION 2*, three.

b. In OPERATIONAL CONDITION 3 and 4, two.

APPLICABILITY: OPERATIONAL CONDITIONS 2*#, 3, and 4.

ACTION:

a. In OPERATIONAL CONDITION 2* with one of the above required source range monitor channels inoperable, restore at least three source range monitor channels to OPERABLE status within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours.

b. In OPERATIONAL CONDITION 3 or 4 with one or more of the above required source range monitor channels inoperable, verify all insertable control rods to be inserted in the core and lock the reactor mode switch in the Shutdown position within 1 hour.

SURVEILLANCE REQUIREMENTS

4.3.7.6 Each of the above required source range monitor channels shall be demonstrated OPERABLE by:

a. Performance of a:

1. CHANNEL CHECK at least once per:

a) 12 hours in CONDITION 2*, and
b) 24 hours in CONDITION 3 or 4.

2. CHANNEL CALIBRATION** at least once per 24 months.

b. Performance of a CHANNEL FUNCTIONAL TEST at least once per 31 days.

c. Verifying, prior to withdrawal of control rods, that the SRM count rate is at least 3.0 cps*** with the detector fully inserted.#

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*With IRM's on range 2 or below.
**Neutron detectors may be excluded from CHANNEL CALIBRATION.
***May be reduced, provided the source range monitor has an observed count rate and signal-to-noise ratio on or above the curve shown in Figure 3.3.6-1.
#During initial startup test program, SRM detectors may be partially withdrawn prior to IRM on-scale indication provided that the SRM channels remain on scale above 100 cps and respond to changes in the neutron flux.

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TABLE 4.3.7.4-1

REMOTE SHUTDOWN SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK *	CHANNEL CALIBRATION
1. Reactor Vessel Pressure	M	R
2. Reactor Vessel Water Level	M	R
3. Safety/Relief Valve Position, 3 valves	M	NA
4. Suppression Chamber Water Level	M	R
5. Suppression Chamber Water Temperature	M	R
6. Drywell Pressure	M	R
7. Drywell Temperature	M	R
8. RHR System Flow	M	R
9. RHR Service Water Pump Discharge Pressure	M	R
10. RHR Heat Exchanger Service Water Outlet Pressure	M	R
11. RCIC System Flow	M	R
12. RCIC Turbine Speed	M	R
13. Emergency Service Water Pump Discharge Pressure	M	R
14. Condensate Storage Tank Level	M	R
15. RHR Heat Exchanger Bypass Valve (HV51-1F048A) Position Indication (0 - 100%)	M	R
16. RCIC Turbine Tripped Indication	M	R
17. RCIC Turbine Bearing Oil Pressure Low Indication	M	R
18. RCIC LP Bearing Oil Temperature High Indication	M	R
19. RHR Heat Exchanger Discharge Line High Radiation Indication	M	R

*Control is not required to be transferred to perform this CHANNEL CHECK.

Refer to PORC Position # 51, 55

LIMITING CONDITION FOR OPERATION

3.3.7.5 The accident monitoring instrumentation channels shown in Table 3.3.7.5-1 shall be OPERABLE.

APPLICABILITY: As shown in Table 3.3.7.5-1.

ACTION:

With one or more accident monitoring instrumentation channels inoperable, take the ACTION required by Table 3.3.7.5-1.

SURVEILLANCE REQUIREMENTS

4.3.7.5 Each of the above required accident monitoring instrumentation channels shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3.7.5-1.

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Refer to PORC Position # 51, 55

TABLE 3.3.7.5-1

ACCIDENT MONITORING INSTRUMENTATION

INSTRUMENT	REQUIRED NUMBER OF CHANNELS	MINIMUM CHANNELS OPERABLE	APPLICABLE OPERATIONAL CONDITIONS	ACTION
1. Reactor Vessel Pressure	2	1	1,2	80
2. Reactor Vessel Water Level	2	1	1,2	80
3. Suppression Chamber Water Level	2	1	1,2	80
4. Suppression Chamber Water Temperature	8, 6 locations	6, 1/location	1,2	80
5. Suppression Chamber Air Temperature	1	1	1,2	80
6. Drywell Pressure	2	1	1,2	80
7. Drywell Air Temperature	1	1	1,2	80
8. Drywell Oxygen Concentration Analyzer	2	1	1,2	80
9. Drywell Hydrogen Concentration Analyzer	2	1	1,2	80
10. Safety/Relief Valve Position Indicators	1/valve	1/valve	1,2	80
11. Primary Containment Post-LOCA Radiation Monitors	4	2	1,2,3	81
12. North Stack Wide Range Accident Monitor**	3*	3*	1,2,3	81
13. Neutron Flux	2	1	1,2	80

Refer to PORC
Position # 51, 55

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Table 3.3.7.5-1 (Continued)

ACCIDENT MONITORING INSTRUMENTATION

TABLE NOTATIONS

*Three noble gas detectors with overlapping ranges (10^{-7} to 10^{-1}, 10^{-4} to 10^{2}, 10^{-1} to 10^{5} $\mu Ci/cc$).
**High range noble gas monitor.

ACTION STATEMENTS

ACTION 80 -

a. With the number of OPERABLE accident monitoring instrumentation channels less than the Required Number of Channels shown in Table 3.3.7.5-1, restore the inoperable channel(s) to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.

b. With the number of OPERABLE accident monitoring instrumentation channels less than the Minimum Channels OPERABLE requirements of Table 3.3.7.5-1, restore the inoperable channel(s) to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours.

ACTION 81 - With the number of OPERABLE accident monitoring instrumentation channels less than required by the Minimum Channels OPERABLE requirement, initiate the preplanned alternate method of monitoring the appropriate parameters within 72 hours, and

a. Either restore the inoperable channel(s) to OPERABLE status within 7 days of the event, or

b. Prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

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TABLE 4.3.7.5-1

ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION
1. Reactor Vessel Pressure	M	R
2. Reactor Vessel Water Level	M	R
3. Suppression Chamber Water Level	M	R
4. Suppression Chamber Water Temperature	M	R
5. Suppression Chamber Air Temperature	M	R
6. Primary Containment Pressure	M	R
7. Drywell Air Temperature	M	R
8. Drywell Oxygen Concentration Analyzer	M	Q#
9. Drywell Hydrogen Concentration Analyzer	M	Q*
10. Safety/Relief Valve Position Indicators	M	R
11. Primary Containment Post LOCA Radiation Monitors	M	R**
12. North Stack Wide Range Accident Monitor***	M	R
13. Neutron Flux	M	R

*Using calibration gas containing:
Seven volume percent hydrogen, balance nitrogen.

**CHANNEL CALIBRATION shall consist of an electronic calibration of the channel, not including the detector, for range decades above 10 R/h and a one point calibration check of the detector below 10 R/h with an installed or portable gamma source.

***High range noble gas monitors.

#Using calibration gas containing:
Seven volume percent oxygen, balance nitrogen.

Refer to PORC Position # 51, 55

LIMITING CONDITION FOR OPERATION

3.3.7.6 At least the following source range monitor channels shall be OPERABLE:

a. In OPERATIONAL CONDITION 2*, three.

b. In OPERATIONAL CONDITION 3 and 4, two.

APPLICABILITY: OPERATIONAL CONDITIONS 2*, 3, and 4.

ACTION:

a. In OPERATIONAL CONDITION 2* with one of the above required source range monitor channels inoperable, restore at least three source range monitor channels to OPERABLE status within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours.

b. In OPERATIONAL CONDITION 3 or 4 with one or more of the above required source range monitor channels inoperable, verify all insertable control rods to be inserted in the core and lock the reactor mode switch in the Shutdown position within 1 hour.

SURVEILLANCE REQUIREMENTS

4.3.7.6 Each of the above required source range monitor channels shall be demonstrated OPERABLE by:

a. Performance of a:

1. CHANNEL CHECK at least once per:

a) 12 hours in CONDITION 2*, AND

b) 24 hours in CONDITION 3 or 4.

2. CHANNEL CALIBRATION** at least once per 24 months.

b. Performance of a CHANNEL FUNCTIONAL TEST at least once per 31 days.

c. Verifying, prior to withdrawal of control rods, that the SRM count rate is at least 3.0 cps*** with the detector fully inserted.

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*With IRM's on range 2 or below.

**Neutron detectors may be excluded from CHANNEL CALIBRATION.

***May be reduced, provided the source range monitor has an observed count rate and signal-to-noise ratio on or above the curve shown in Figure 3.3.6-1.

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Refer to PORC Position # 22

3/4 6.3 PRIMARY CONTAINMENT ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.3 The primary containment isolation valves and the instrumentation line excess flow check valves shown in Table 3.6.3-1 shall be OPERABLE with isolation times less than or equal to those shown in Table 3.6.3-1.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

a. With one or more of the primary containment isolation valves shown in Table 3.6.3-1 inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and within 4 hours either:

1. Restore the inoperable valve(s) to OPERABLE status, or
2. Isolate each affected penetration by use of at least one deactivated automatic valve secured in the isolated position,* or
3. Isolate each affected penetration by use of at least one closed manual valve or blind flange.*
4. The provisions of Specification 3.0.4 are not applicable provided that within 4 hours the affected penetration is isolated in accordance with ACTION a.2. or a.3. above, and provided that the associated system, if applicable, is declared inoperable and the appropriate ACTION statements for that system are performed.

Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. With one or more of the instrumentation line excess flow check valves shown in Table 3.6.3-1 inoperable, operation may continue and the provisions of Specifications 3.0.3 and 3.0.4 are not applicable provided that within 4 hours either:

1. The inoperable valve is returned to OPERABLE status, or
2. The instrument line is isolated and the associated instrument is declared inoperable.

Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

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*Isolation valves closed to satisfy these requirements may be reopened on an intermittent basis under administrative control.

SURVEILLANCE REQUIREMENTS

4.6.3.1 Each primary containment isolation valve shown in Table 3.6.3-1 shall be demonstrated OPERABLE prior to returning the valve to service after maintenance, repair or replacement work is performed on the valve or its associated actuator, control or power circuit by cycling the valve through at least one complete cycle of full travel and verifying the specified isolation time.

4.6.3.2 Each primary containment automatic isolation valve shown in Table 3.6.3-1 shall be demonstrated OPERABLE at least once per 24 months by verifying that on a containment isolation test signal each automatic isolation valve actuates to its isolation position.

4.6.3.3 The isolation time of each primary containment power operated or automatic valve shown in Table 3.6.3-1 shall be determined to be within its limit when tested pursuant to Specification 4.0.5.

4.6.3.4 Each reactor instrumentation line excess flow check valve shown in Table 3.6.3-1 shall be demonstrated OPERABLE at least once per 24 months by verifying that the valve checks flow.

4.6.3.5 Each traversing in-core probe system explosive isolation valve shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying the continuity of the explosive charge.

b. At least once per 24 months by removing the explosive squib from the explosive valve, such that each explosive squib in each explosive valve will be tested at least once per 120 months, and initiating the explosive squib. The replacement charge for the exploded squib shall be from the same manufactured batch as the one fired or from another batch which has been certified by having at least one of that batch successfully fired. No squib shall remain in use beyond the expiration of its shelf-life and/or operating life, as applicable.

Refer to PORC
Position # 22

TABLE 3.6.3-1

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
003B	CONTAINMENT INSTRUMENT GAS SUPPLY - HEADER 'B'	59-1005B (CK)		NA			59
			HV59-129B	7	C,H,S		
003D-2	CONTAINMENT INSTRUMENT GAS SUPPLY TO ADS VALVES E & K	59-1112(CK)		NA			
			HV59-151B	45	M		59
007A(B,C,D)	MAIN STEAM LINE 'A'(B,C,D)	HV41-1F022A (B,C,D)		5*	C,E,F,P,Q	6	41
			HV41-1F028A (B,C,D)	5*	C,E,F,P,Q	6	
008	MAIN STEAM LINE DRAIN	HV41-1F016		30	C,E,F,P,Q	4	41
			HV41-1F019	30	C,E,F,P,Q		
009A	FEEDWATER	41-1F010A(CK)		NA			41
			HV41-1F074A(CK)	NA			
			41-1036A(CK)	NA			
			HV41-130B	45			
			HV41-133A	45			
			HV41-109A	NA		32	
			HV41-1F032A(CK)	NA			
			HV55-1F105	30		7	
			HV44-1F039(CK) (X-9B)	NA			
			41-1016(X-9B, X-44)	NA		31	

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
009B	FEEDWATER	41-1F010B(CK)		NA			
			HV41-1F074B(CK)	NA			41
			41-1036B(CK)	NA			
			HV41-130A	45			
			HV41-133B	45			
			HV41-109B	NA		32	
			HV41-1F032B(CK)	NA			
			HV49-1F013	23	LFCC		
			HV44-1F039(CK) (X-9A)	NA			
			41-1016(X-9A, X-44)	NA		31	
010	RCIC STEAM SUPPLY	HV49-1F007		7.2*	K, KA	5	49
			HV49-1F008	7.2*	K, KA		
			HV49-1F076	45	K, KA		
011	HPCI STEAM SUPPLY	HV55-1F002		12*	L, LA	5	55
			HV55-1F003	12*	L, LA		
			HV55-1F100	45	L, LA		
012	RHR SHUTDOWN COOLING SUPPLY	HV51-1F009		100	A,V	9,22	51
		PSV51-155		NA			
			HV51-1F008	100	A,V		
013A(B)	RHR SHUTDOWN COOLING RETURN	HV51-1F050A(B) (CK)		NA	A,V	9,22	51
		HV51-151A(B)		20	A,V		
			HV51-1F015A(B)	45	A,V		
014	RWCU - SUCTION	HV44-1F001		10*	B,J,Y		44
			HV44-1F004	10*	B,J,Y		

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
016A	CORE SPRAY INJECTION	HV52-1F006A(CK)		NA		9,22	52
		HV52-1F039A		7		9,22	
			HV52-1F005	18			
016B	CORE SPRAY INJECTION	HV52-1F006B(CK)		NA		9,22	52
		HV52-1F039B		7		9,22	
			HV52-108(CK)	NA			
021	SERVICE AIR TO DRYWELL	15-1140		NA			15
			15-1139	NA			
022	DRYWELL PRESSURE INSTRUMENTATION		HV42-147C	45		10	42
023	RECW SUPPLY TO RECIRC PUMPS	HV13-106		40	C,H	11	13
			HV13-108	30	C,H	11	
			HV13-109	NA		11,13	
024	RECW RETURN FROM RECIRC PUMPS	HV13-107		40	C,H	11	13
			HV13-111	30	C,H	11	
			HV13-110	NA		11,13	

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME, IF APP. (SEC) (26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
025	DRYWELL PURGE SUPPLY	HV57-121(X-201A)		5**	B,H,S,W,R	3,11,14	57
		HV57-123		5**	B,H,S,W,R	3,11,14	
			HV57-109 (X-201A)	6**	B,H,S,W,R	11	
			HV57-131 (X-201A)	5**	B,H,S,W,R	11	
			HV57-135	6**	B,H,S,W,R	11	
	HYDROGEN RECOMBINER "B" INLET	HV57-163		9	B,H,R,S	3,11,14	
			FV-C-DO-101B	90	B,H,R,S	11	
026	DRYWELL PURGE EXHAUST	HV57-114		5**	B,H,S,W,R	3,11,14,33	57
		HV57-111		15**	B,H,S,R	11	
		SV57-139		5		10	
			HV57-115	6**	B,H,S,W,R	11,33	
			HV57-117	5**	B,H,S,R	11	
			SV57-145	5	B,H,R,S	11	
	HYDROGEN RECOMBINER "A" INLET	HV57-161		9	B,H,R,S,	3,11,14	
			FV-C-DO-101A	90	B,H,R,S	11	
027A	CONTAINMENT INSTRUMENT GAS SUPPLY TO ADS VALVES H,M,&S	59-1128(CK)		NA			59
			HV59-151A	45	M		
028A-1	RECIRC LOOP SAMPLE	HV43-1F019		10	B		43
			HV43-1F020	10	B		
028A-2	DRYWELL H2/O2 SAMPLE	SV57-132		5	B,H,R,S	11	57
			SV57-142	5	B,H,R,S	11	
[illegible]-3	DRYWELL H2/O2 SAMPLE	SV57-134		5	B,H,R,S	11	57
			SV57-144	5	B,H,R,S	11	

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
028B	DRYWELL H2/O2 SAMPLE	SV57-133		5	B,H,R,S	11	57
			SV57-143	5	B,H,R,S	11	
			SV57-195	5	B,H,R,S	11	
030B-1	DRYWELL PRESSURE INSTRUMENTATION		HV42-147A	45		10	42
035B	TIP PURGE	59-1056(CK) (DOUBLE "O" RING)		NA			59
			HV59-131	7	B,H,S	16	
035C-G	TIP DRIVES	XV59-141A-E (DOUBLE "O" RING)		NA	B,H	11,16,21	59
			XV59-140A-E	NA		11,16	
037A-D	CRD INSERT LINES	BALL CHECK		NA		12	47
			46-1101	NA		12,22	
			46-1102	NA		12,22	
			46-1108	NA		12,22	
			46-1109	NA		12,22	
038A-D	CRD WITHDRAW LINES SDV VENTS & DRAINS		46-1115	NA		12,22	47
			46-1116	NA		12,22	
			46-1122	NA		12,22	
			46-1123	NA		12,22	
			XV47-1F010	25		30	
			XV47-1F180	30		30	
			XV47-1F011	25		30	
			XV47-1F181	30		30	
039A(B)	DRYWELL SPRAY	HV51-1F021A(B)		160		4,11	51
			HV51-1F016A(B)	160		11	
040E	DRYWELL PRESSURE INSTRUMENTATION		HV42-147D	45		10	42
040F-2	CONTAINMENT INSTRUMENT GAS -SUCTION	HV59-101		45	C,H,S	5	59
			HV59-102	7	C,H,S		

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX.ISOL. TIME.IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
040G-1	ILRT DATA ACQUISITION	60-1057		NA		11	60
			60-1058	NA		11	
040G-2	ILRT DATA ACQUISITION	60-1071		NA		11	60
			60-1070	NA		11	
040H-1	CONTAINMENT INSTRUMENT GAS SUPPLY - HEADER 'A'	59-1005A(CK)		NA			59
			HV59-129A	7	C,H,S		
042	STANDBY LIQUID CONTROL	48-1F007(CK) (X-116)		NA			48
			HV48-1F006A	60		29	
043B	MAIN STEAM SAMPLE	HV41-1F084		10	B		41
			HV41-1F085	10	B		
044	RWCU ALTERNATE RETURN	41-1017		NA		5,31	41
			41-1016(X-9A, X-9B)	NA			
			PSV41-112	NA			
045A(B,C,D)	LPCI INJECTION 'A'(B,C,D)	HV51-1F041A(B,C, D)(CK)		NA		9,22	51
		HV51-142A(B,C, D)		7		9,22	
			HV51-1F017A (B,C,D)	38			
050A-1	DRYWELL PRESSURE INSTRUMENTATION		HV42-147B	45		10	42
053	DRYWELL CHILLED WATER SUPPLY - LOOP 'A'	HV87-128		60	C,H	11	87
			HV87-120A	60	C,H	11	
			HV87-125A	NA		34	

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX.ISOL. TIME.IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
054	DRYWELL CHILLED WATER RETURN - LOOP 'A'	HV87-129		60	C,H	11	87
			HV87-121A	60	C,H	11	
			HV87-124A	NA		34	
055	DRYWELL CHILLED WATER SUPPLY - LOOP 'B'	HV87-122		60	C,H	11	87
			HV87-120B	60	C,H	11	
			HV87-125B	NA		34	
056	DRYWELL CHILLED WATER RETURN - LOOP 'B'	HV87-123		60	C,H	11	87
			HV87-121B	60	C,H	11	
			HV87-124B	NA		34	
061-1	RECIRC PUMP 'A' SEAL PURGE	43-1004A(CK)		NA		15	43
			(XV43-103A - SEE PART B, THIS TABLE)	NA		1	
061-2	RECIRC PUMP 'B' SEAL PURGE	43-1004B(CK)		NA		15	43
			(XV43-103B - SEE PART B, THIS TABLE)	NA		1	
062	DRYWELL H2/O2 SAMPLE RETURN, N2 MAKE-UP	SV57-150(X-220A)		5	B,H,R,S	11	57
			SV57-159 (X-220A)	5	B,H,R,S	11	
			HV57-116 (X-220A)	30**	B,H,R,S	11	
			SV57-190 (X-220A)	5	B,H,R,S	11	

TABLE 3.6.3-1 (Continued)
PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
			SV57-191 (X-220A)	5	B,H,R,S	11	
116	STANDBY LIQUID CONTROL	48-1F007(CK) (X-42)		NA			48
			HV48-1F006B	60		29	
117B-1	DRYWELL RADIATION MONITORING SUPPLY	SV26-190A		5	B,H,R,S	11	26
			SV26-190B	5	B,H,R,S	11	
117B-2	DRYWELL RADIATION MONITORING RETURN	SV26-190C		5	B,H,R,S	11	26
			SV26-190D	5	B,H,R,S	11	
201A	SUPPRESSION POOL PURGE SUPPLY	HV57-124		5**	B,H,S,W,R	3,11,14	57
		HV57-131(X-25)		5**	B,H,S,W,R	3,11,14	
			HV57-109(X-25)	6**	B,H,S,W,R	11	
			HV57-147	6**	B,H,S,W,R	11	
			HV57-121(X-25)	5**	B,H,S,W,R	11	
	HYDROGEN RECOMBINER "B" EXHAUST	HV57-164		9	B,H,R,S	3,11,14	
			HV57-169	9	B,H,R,S	11	
202	SUPPRESSION POOL PURGE EXHAUST	HV57-104		5**	B,H,S,W,R	3,11,14,33	57
		HV57-105		15**	B,H,S,R	11	
			HV57-112	6**	B,H,S,W,R	11,33	
			HV57-118	5**	B,H,S,R	11	
			SV57-185	5	B,H,R,S	11	
	HYDROGEN RECOMBINER "A" EXHAUST	HV57-162		9	B,H,R,S	3,11,14	
			HV57-166	9	B,H,R,S	11	
203A(B,C,D)	RHR PUMP SUCTION		HV51-1F004A(B, C,D)	240		29,35	51
			PSV51-1F030A (P D)	NA		35	

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX.ISOL. TIME.IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
204A(B)	RHR PUMP TEST LINE AND CONTAINMENT COOLING		HV51-125A(B)	180		29,35	51
205A(B)	SUPPRESSION POOL SPRAY		HV51-1F027A(B)	45	C,G	11	51
206A(B,C,D)	CS PUMP SUCTION		HV52-1F001A (B,C,D)	160		29,35	52
207A(B)	CS PUMP TEST AND FLUSH		HV52-1F015A(B)	23	C,G	35	52
208B	CS PUMP MINIMUM RECIRC		HV52-1F031B	45	LFCH	29,35	52
209	HPCI PUMP SUCTION		HV55-1F042	160	L,LA	35	55
210	HPCI TURBINE EXHAUST		HV55-1F072	120		29,35	55
212	HPCI PUMP TEST AND FLUSH		HV55-1F071	40	B,H	35	55
214	RCIC PUMP SUCTION		HV49-1F031	60		29,35	49
215	RCIC TURBINE EXHAUST		HV49-1F060	80		29,35	49
216	RCIC MINIMUM FLOW		HV49-1F019	8	LFRC	35	49

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME, IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
217	RCIC VACUUM PUMP DISCH	HV49-1F002		60		5,29	49
			49-1F028(CK)	NA			
218	INSTRUMENT GAS TO VACUUM RELIEF VALVES	59-1001(CK)		NA			59
			HV59-135	7	C,H,S		
219A	INSTRUMENTATION - SUPPRESSION POOL LEVEL	--	HV55-121	45		10	55
			HV55-126	45		10	55
219B	INSTRUMENTATION - SUPPRESSION POOL LEVEL	--	HV55-120	45		10	55
220A	H2/O2 SAMPLE RETURN	SV57-191(X-62)		5	B,H,R,S	11	57
			SV57-190(X-62)	5	B,H,R,S	11	
			HV57-116(X-62)	30**	B,H,R,S	11	
			SV57-150(X-62)	5	B,H,R,S	11	
			SV57-159(X-62)	5	B,H,R,S	11	
220B	INSTRUMENTATION - SUPPRESSION POOL PRESSURE SUPPRESSION POOL LEVEL	--	SV57-101	5		10	57
221A	WETWELL H2/O2 SAMPLE	SV57-181		5	B,H,R,S	11	57
			SV57-141	5	B,H,R,S	11	
			SV57-184	5	B,H,R,S	11	
221B	WETWELL H2/O2 SAMPLE	SV57-183		5	B,H,R,S	11	57
			SV57-186	5	B,H,R,S	11	

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX.ISOL. TIME.IF APP. (SEC)(26)	ISOL. SIGNAL(S) IF APP. (20)	NOTES	P&ID
226A	RHR MINIMUM RECIRC		HV51-105A	40		29,35	51
226B	RHR MINIMUM RECIRC		HV51-105B	40		29,35	51
227	ILRT DATA ACQUISITION SYSTEM	60-1073		NA			60
			60-1074	NA			
228D	HPCI VACUUM RELIEF	HV55-1F095		40	H,LA	4,11,24	55
			HV55-1F093	40	H,LA	11,24	
230B	INSTRUMENTATION - DRYWELL SUMP LEVEL		HV61-102	45		1,23,29	61
			HV61-112	45		23,29	
			HV61-132	45		23,29	
231A	DRYWELL FLOOR DRAIN SUMP DISCHARGE	HV61-110		30	B,H	11,22	61
			HV61-111	30	B,H	11,22	
231B	DRYWELL EQUIPMENT DRAIN TANK DISCHARGE	HV61-130		30	B,H	11,22	61
			HV61-131	30	B,H	11,22	
235	CS PUMP MINIMUM RECIRC		HV52-1F031A	45	LFCH	29,35	52
236	HPCI PUMP MINIMUM RECIRC		HV55-1F012	15	LFHP	35	55

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX.ISOL. TIME.IF APP. (SEC)(26)	ISOL. SIGNAL(S) IF APP. (20)	NOTES	P & ID
237-1	SUPPRESSION POOL CLEANUP PUMP SUCTION	HV52-127		60	B,H	4,11,22	52
			PSV52-127	NA		11,22	
			HV52-128	60	B,H	11,22	
237-2	SUPPRESSION POOL LEVEL INSTRUMENTATION		HV52-139	45		10	52
			SV52-139	6		10	
238	RHR RELIEF VALVE DISCHARGE		HV-C-51-1F104B	NA		11	51
			PSV51-106B	NA		19	
239	RHR RELIEF VALVE DISCHARGE		HV-C-51-1F103A	NA		11	51
			PSV51-106A	NA		19	
241	RCIC VACUUM RELIEF	HV49-1F084		40	H,KA	4,11,24	49
			HV49-1F080	40	H,KA	11,24	

TABLE 3.6. (Continued)

PART B - PRIMARY CONTAINMENT ISOLATION EXCESS FLOW CHECK VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX.ISOL. TIME.IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
003A-1	INSTRUMENTATION - 'D' MAIN STEAM LINE FLOW	--	XV41-1F070D XV41-1F073D			1	41
003A-2	INSTRUMENTATION - 'A' RECIRC PUMP SEAL PRESSURE	--	XV43-1F003A			1	43
003C-1	INSTR. - HPCI STEAM FLOW	--	XV55-1F024A			1	55
003C-2	INSTR. - HPCI STEAM FLOW	--	XV55-1F024C			1	55
003D-1	INSTR. - 'A' MAIN STEAM LINE FLOW	--	XV41-1F070A XV41-1F073A			1	41
007A(B,C,D)	INSTR. - 'A'(B,C,D) MAIN STEAM LINE PRESSURE	(HV41-1F022A(B, C,D) SEE PART A THIS TABLE)	(HV41-1F028A (B,C,D)	5* 5*	C,E,F,P,Q C,E,F,P,Q	6 6	41
020A-1	INSTR - RPV LEVEL	--	XV42-1F045B			1	42
020A-2	INSTR - 'B' LPCI DELTA P	--	XV51-102B			1	51
020A-3	INSTR - 'D' LPCI DELTA P	--	XV51-103B			1	51
020B-1	INSTR - RPV LEVEL	--	XV42-1F045C			1	42
020B-2	INSTR - 'C' LPCI DELTA P	--	XV51-102C			1	51

Refer to PORC Position # 22

TABLE 3.6.3-1 (Continued)

PART B - PRIMARY CONTAINMENT ISOLATION EXCESS FLOW CHECK VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
027B-1	INSTR - HPCI FLOW	--	XV55-1F024B			1	55
027B-2	INSTR - HPCI FLOW	--	XV55-1F024D			1	55
029A	INSTR - RPV FLANGE LEAKAGE	--	XV41-1F009			1,27	41
029B	INSTR - CS DELTA P	--	XV52-1F018A			1	52
030A	INSTR - 'D' MAIN STEAM FLOW	--	XV41-1F071D XV41-1F072D			1	41
030B-2	INSTR - 'C' MAIN STEAM LINE FLOW	--	XV41-1F071C XV41-1F072C			1	41
031A	INSTR - JET PUMP FLOW	--	XV42-1F059B (JP1) XV42-1F059D (JP2) XV42-1F059F (JP3)			1	42
031B	INSTR - JET PUMP FLOW	--	XV42-1F059H (JP4) XV42-1F051B (JP5) XV42-1F053B (JP6)			1	42

Refer to PORC Position # 22

TABLE 3.6.3-1 (Continued)

PART B - PRIMARY CONTAINMENT ISOLATION EXCESS FLOW CHECK VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME, IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
032A	INSTR - JET PUMP FLOW	--	XV42-1F059M (JP6) XV42-1F059P (JP7) XV42-1F059S (JP8)		1	42	
032B	INSTR - JET PUMP FLOW	--	XV42-1F059U (JP9) XV42-1F051D (JP10) XV42-1F053D (JP10)		1	42	
033A-1	INSTR-PRESSURE ABOVE CORE PLATE	--	XV42-1F055 XV42-1F076		1	42	
033A-2	INSTR-PRESSURE BELOW CORE PLATE	--	XV42-1F061		1	42	
033B	INSTR-RCIC STEAM FLOW	--	XV49-1F044A,C		1	49	
034A	INSTR - 'C' MAIN STEAM LINE FLOW	--	XV41-1F070C XV41-1F073C		1	41	
034B-1	INSTR - RECIRC FLOW	--	XV43-1F009C XV43-1F010D		1	43	
034B-2	INSTR - RECIRC FLOW	--	XV43-1F009D XV43-1F010C		1	43	

Refer to PORC Position # 22

TABLE 3.6.3-1 (Continued)

PART B - PRIMARY CONTAINMENT ISOLATION EXCESS FLOW CHECK VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME, IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
040A	INSTR - JET PUMP FLOW	--	XV42-1F059L (JP15) XV42-1F059N (JP17) XV42-1F059R (JP18)			1	42
040B	INSTR - JET PUMP FLOW	--	XV42-1F059G (JP14) XV42-1F051A (JP16) XV42-1F053A (JP16)			1	42
040C	INSTR - JET PUMP FLOW	--	XV42-1F059A (JP11) XV42-1F059C (JP12) XV42-1F059E (JP13)			1	42
040D-1	INSTR - PRESSURE BELOW CORE PLATE	--	XV42-1F057			1	42
040D-2	INSTR - RWCU BOTTOM DRAIN FLOW	--	XV44-170 XV44-171			1	44

Refer to PORC Position # 22

Refer to PCRC Position # 22

TABLE 3.6.3-1 (Continued)

PART B - PRIMARY CONTAINMENT ISOLATION EXCESS FLOW CHECK VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
040F-1	INSTR - RCIC STEAM FLOW	--	XV49-1F044B XV49-1F044D			1	49
040H-2	INSTR 'B' RECIRC PUMP COOLER FLOW	--	XV87-156B XV87-157B			17	87
041-1	INSTR - RWCU FLOW	--	XV44-102A,B			1	44
041-2	INSTR - 'A' LPCI DELTA P	--	XV51-103A			1	51
043A	INSTR - RECIRC LOOP 'A' DELTA P	--	XV43-1F040A,C			1	43
047	INSTR - RWCU FLOW	--	XV44-102D			1	44
048A-1	INSTR - RPV LEVEL	--	XV42-1F065B XV42-1F047B			1	42
048A-2	INSTR - CS DELTA P	--	XV52-1F018B			1	52
048B	INSTR - RPV LEVEL	--	XV42-1F065A XV42-1F047A			1	42
049A,B	INSTR - 'A' AND 'B' MAIN STEAM LINE FLOW	--	XV41-1F071A,B XV41-1F072A,B			1	41
050A-2	INSTR 'B' RECIRC FLOW	--	XV43-1F011A XV43-1F012B			1	43

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Refer to PORC Position # 22

TABLE 3.6.3-1 (Continued)

PART B - PRIMARY CONTAINMENT ISOLATION EXCESS FLOW CHECK VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME, IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
050A-3	INSTR 'B' RECIRC FLOW	--	XV43-1F011B XV43-1F012A			1	43
050B-1	INSTR - 'A' RECIRC PUMP SEAL PRESSURE	--	XV43-1F004A			1	43
050B-2	INSTR - 'A' RECIRC PUMP COOLER FLOW	--	XV87-156A XV87-157A			17	87
051A-1	INSTR - 'A' RECIRC LINE FLOW	--	XV43-1F009A XV43-1F010B			1	43
051A-2	INSTR - 'A' RECIRC LINE FLOW	--	XV43-1F009B XV43-1F010A			1	43
051B	INSTR - JET PUMP FLOW	--	XV42-1F059T (JP19) XV42-1F051C (JP20) XV42-1F053C (JP20)			1	42
052A	INSTR - 'B' MAIN STEAM LINE FLOW	--	XV41-1F070B XV41-1F073B			1	41
052B-1	INSTR - 'B' RECIRC LINE FLOW	--	XV43-1F011C,D			1	43
052B-2	INSTR - 'B' RECIRC LINE FLOW	--	XV43-1F012C,D			1	43
057	INSTR - RWCU FLOW	--	XV44-102C			1	44

Refer to PCRC Position # 22

TABLE 3.6.3-1 (Continued)

PART B - PRIMARY CONTAINMENT ISOLATION EXCESS FLOW CHECK VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
058A	INSTR - RECIRC LOOP 'B' DELTA P	--	XV43-1F040B			1	43
061-1	RECIRC PUMP SEAL PURGE	(43-1004A(CK) - See Part A of this table)	XV43-103A			15 1	43
061-2	RECIRC PUMP SEAL PURGE	(43-1004B(CK) See Part A of this table)	XV43-103B			15 1	43
063-1	INSTR - RECIRC LOOP 'B' DELTA P	--	XV43-1F040D			1	43
063-2	INSTR - 'B' RECIRC PUMP SEAL PRESSURE	--	XV43-1F004B XV43-1F003B			1	43
065A	INSTR - RPV PRESSURE	--	XV42-1F043B			1	42
065B	INSTR - RPV PRESSURE	--	XV42-1F049A			1	42
066A-1	INST-RPV LEVEL	--	XV42-1F045D			1	42
066A-2	INSTR - 'B' LPCI DELTA P	--	XV51-102D XV51-103D			1	51
066B-1	INST - RPV LEVEL	--	XV42-1F045A			1	42
066B-2	INST - 'A' LPCI DELTA P	--	XV51-102A XV51-103C			1	51
067A	INSTR - RPV PRESSURE	--	XV42-1F049B			1	42

TABLE 3.6.3-1 (Continued)

PART B - PRIMARY CONTAINMENT ISOLAION EXCESS FLOW CHECK VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
067B-1	INSTR - RPV PRESSURE	--	XV42-1F043A			1	42
067B-2	INSTR - RPV LEVEL	--	XV42-1F041			1	42
102A	INST - JET PUMP, REACTOR LEVEL	--	XV42-185A(JP16)			1	42
107	INST. - JET PUMP, REACTOR LEVEL	--	XV42-185B(JP5)			1	42

Refer to Position # 22

TABLE 3.6.3-1 (Continued)

PART C - PRIMARY CONTAINMENT PENETRATIONS (TYPE B)

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
NA	DRYWELL HEAD FLANGE	DOUBLE O-RING	--	--	--	2	60
001	EQUIPMENT ACCESS DOOR	DOUBLE O-RING	--	--	--	2	60
002	EQUIPMENT ACCESS DOOR AND PERSONNEL LOCK	DOUBLE O-RING	--	--	--	2,18	60
004	HEAD ACCESS MANHOLE	DOUBLE O-RING	--	--	--	2	60
006	CRD REMOVAL HATCH	DOUBLE O-RING	--	--	--	2	60
100A-D	NEUTRON MONITORING SYSTEM	CANISTER	--	--	--	8	60
101A-D	RECIRC PUMP POWER	CANISTER	--	--	--	8	60
103A,B	TEMPERATURE AND LOW LEVEL SIGNALS	CANISTER	--	--	--	8	60
104A-D	CRD POSITION INDICATOR	CANISTER	--	--	--	8	60
105A-E	MISCELLANEOUS LOW-VOLTAGE CONTROL POWER	CANISTER	--	--	--	8	60
106A-C	LOW-VOLTAGE CONTROL	CANISTER	--	--	--	8	60

TABLE 3.6.3-1 (Continued)

PART C - PRIMARY CONTAINMENT PENETRATIONS (TYPE B)

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
200A,B	ACCESS HATCH	DOUBLE O-RING	--	--	--	2	60
222	INDICATION AND CONTROL	CANISTER	--	--	--	8	60
230A	STRAIN GAUGE INSTR.	CANISTER	--	--	--	8	60

TABLE 3.6.3-1
PRIMARY CONTAINMENT ISOLATION VALVES
NOTATION

NOTES

1. Instrumentation line isolation provisions consist of an orifice and excess flow-check valve or remote manual isolation valve. The excess flow-check valve is subjected to operability testing, but no Type C test is performed or required. The line does not isolate during a LOCA and can leak only if the line or instrument should rupture. Leaktightness of the line is verified during the integrated leak rate test (Type A test).

2. Penetration is sealed by a blind flange or door with double O-ring seals. These seals are leakage rate tested by pressurizing between the O-rings.

3. Inboard butterfly valve tested in the reverse direction.

4. Inboard gate valve tested in the reverse direction.

5. Inboard globe valve tested in the reverse direction.

6. The MSIVs and this penetration are tested by pressurizing between the valves. Testing of the inboard valve in the reverse direction tends to unseat the valve and is therefore conservative. The valves are Type C tested at a test pressure of 22 psig.

7. Gate valve tested in the reverse direction.

8. Electrical penetrations are tested by pressurizing between the seals.

9. The isolation provisions for this penetration consist of two isolation valves and a closed system outside containment. Because a water seal is maintained in these lines by the safeguard piping fill system, the inboard valve may be tested with water. The outboard valve will be pneumatically tested.

10. The valve does not receive an isolation signal but remains open to measure containment conditions post-LOCA. Leaktightness of the penetration is verified during the Type A test. Type C test is not required.

11. All isolation barriers are located outside containment.

12. Leakage monitoring of the control rod drive insert and withdraw line is provided by Type A leakage rate test. The outboard isolation provisions for the control rod insert and withdraw lines consists of two redundant Type C tested simple check valves located on each main water header (i.e., charging, cooling, drive and exhaust). Type C test is not required for the ball check valve.

13. The motor operators on HV-13-109 and HV-13-110 are not connected to any power supply.

14. Valve is provided with a separate testable seal assembly, with double concentric O-ring seals installed between the pipe flange and valve flange facing primary containment. Leakage through these seals is included within the Type C leakage rate for this penetration.

TABLE 3.6.3-1
PRIMARY CONTAINMENT ISOLATION VALVES
NOTATION

NOTES (Continued)

15. Check valve used instead of flow orifice.

16. Penetration is sealed by a flange with double O-ring seals. These seals are leakage rate tested by pressurizing between the O-rings. Both the TIP Purge Supply (Penetration 35B) and the TIP Drive Tubes (Penetrations 35 C thru G)are welded to their respective flanges. Leakage through these seals is included in the Type C leakage rate total for this penetration. The ball valves (XV-141A thru E) are Type C tested. It is not practicable to leak test the shear valves (XV-140A thru E) because squib firing is required for closure. Shear valves (XV-140A thru E) are normally open.

17. Instrument line isolation provisions consist of an excess flow check valve. Because the instrument line is connected to a closed cooling water system inside containment, no flow orifice is provided. The excess flow check valves are subject to operability testing, but no Type C test is performed nor required. The line does not isolate during a LOCA and can leak only if the line or instrument should rupture. Leaktightness of the line is verified during the integrated leak rate test (Type A test).

18. In addition to double "O" ring seals, this penetration is tested by pressurizing volume between doors per Specification 4.6.1.3.

19. The RHR system safety pressure relief valves which are flanged to facilitate removal will be equipped with double O-ring seal assemblies on the flange closest to primary containment. These seals will be leak rate tested by pressurizing between the O-rings, and the results added into the Type C total for this penetration.

20. See Specification 3.3.2, Table 3.3.2-1, for a description of the PCRVICS isolation signal(s) that initiate closure of each automatic isolation valve. In addition, the following non-PCRVICS isolation signals also initiate closure of selected valves:

EA Main steam line high pressure, high steam line leakage flow, low MSIV-LCS dilution air flow

LFHP With HPCI pumps running, opens on low flow in associated pipe, closes when flow is above setpoint

LFRC With RCIC pump running, opens on low flow in associated pipe, closes when flow is above setpoint

LFCH With CSS pump running, opens on low flow in associated pipe, closes when flow is above setpoint

LFCC Steam supply valve fully closed or RCIC turbine stop valve fully closed

All power operated isolation valves may be opened or closed remote manually.

NOTES (Continued)

21. Automatic isolation signal causes TIP to retract; ball valve closes when probe is fully retracted.

22. Isolation barrier remains water filled or a water seal remains in the line post-LOCA. Isolation valve may be tested with water. Isolation valve leakage is not included in 0.60 La total Type B & C tests.

23. Valve does not receive an isolation signal. Valves will be open during Type A test. Type C test not required.

24. Both isolation signals required for valve closure.

25. Deleted

26. Valve stroke times listed are maximum times verified by testing per Specification 4.0.5 acceptance criteria. The closure times for isolation valves in lines in which high-energy line breaks could occur are identified with a single asterisk. The closure times for isolation valves in lines which provide an open path from the containment to the environs are identified with a double asterisk.

27. The reactor vessel head seal leak detection line (penetration 29A) excess flow check valve is not subject to OPERABILITY testing. This valve will not be exposed to primary system pressure except under the unlikely conditions of a seal failure where it could be partially pressurized to reactor pressure. Any leakage path is restricted at the source; therefore, this valve need not be OPERABILITY tested.

28. (DELETED)

29. Valve may be open during normal operation; capable of manual isolation from control room. Position will be controlled procedurally.

30. Valve normally open, closes on scram signal.

31. Valve 41-1016 is an outboard isolation barrier for penetrations X-9A, B and X-44. Leakage through valve 41-1016 is included in the total for penetration X-44 only.

32. Feedwater long-path recirculation valves are sealed closed whenever the reactor is critical and reactor pressure is greater than 600 psig. The valves are expected to be opened only in the following instances:

    a. Flushing of the condensate and feedwater systems during plant startup.

    b. Reactor pressure vessel hydrostatic testing, which is conducted following each refueling outage prior to commencing plant startup.

    Therefore, valve stroke timing in accordance with Specification 4.0.5 is not required.

33. Valve also constitutes a Unit 2 Reactor Enclosure Secondary Containment Automatic Isolation Valve and a Refueling Area Secondary Containment Automatic Isolation Valve as shown in Table 3.6.5.2.1-1 and Table 3.6.5.2.2-1 respectively.

34. Auto isolation signals have been removed from HV-087-124 A/B and 125 A/B. Valves to be closed with associated circuit breakers locked open during OPCONs 1, 2, and 3.

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TABLE 3.6.3-1
PRIMARY CONTAINMENT ISOLATION VALVES
NOTATION

NOTES (Continued)

35. These valves are in lines that are below the minimum water level in the suppression pool, are part of closed systems outside primary containment, and are in portions of lines which a water seal will be present following an accident. Therefore, 10CFR50, Appendix J, Type C testing is not required.

Refer to PORC Position # 22

3/4.6.3 PRIMARY CONTAINMENT ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.3 The primary containment isolation valves and the instrumentation line excess flow check valves shown in Table 3.6.3-1 shall be OPERABLE with isolation times less than or equal to those shown in Table 3.6.3-1.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

a. With one or more of the primary containment isolation valves shown in Table 3.6.3-1 inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and within 4 hours either:

1. Restore the inoperable valve(s) to OPERABLE status, or
2. Isolate each affected penetration by use of at least one deactivated automatic valve secured in the isolated position,* or
3. Isolate each affected penetration by use of at least one closed manual valve or blind flange.*
4. The provisions of Specification 3.0.4 are not applicable provided that within 4 hours the affected penetration is isolated in accordance with ACTION a.2. or a.3. above, and provided that the associated system, if applicable, is declared inoperable and the appropriate ACTION statements for that system are performed.

Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. With one or more of the instrumentation line excess flow check valves shown in Table 3.6.3-1 inoperable, operation may continue and the provisions of Specifications 3.0.3 and 3.0.4 are not applicable provided that within 4 hours either:

1. The inoperable valve is returned to OPERABLE status, or
2. The instrument line is isolated and the associated instrument is declared inoperable.

Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

*Isolation valves closed to satisfy these requirements may be reopened on an intermittent basis under administrative control.

SURVEILLANCE REQUIREMENTS

4.6.3.1 Each primary containment isolation valve shown in Table 3.6.3-1 shall be demonstrated OPERABLE prior to returning the valve to service after maintenance, repair or replacement work is performed on the valve or its associated actuator, control or power circuit by cycling the valve through at least one complete cycle of full travel and verifying the specified isolation time.

4.6.3.2 Each primary containment automatic isolation valve shown in Table 3.6.3-1 shall be demonstrated OPERABLE at least once per 24 months by verifying that on a containment isolation test signal each automatic isolation valve actuates to its isolation position.

4.6.3.3 The isolation time of each primary containment power operated or automatic valve shown in Table 3.6.3-1 shall be determined to be within its limit when tested pursuant to Specification 4.0.5.

4.6.3.4 Each instrumentation line excess flow check valve shown in Table 3.6.3-1 shall be demonstrated OPERABLE at least once per 24 months by verifying that the valve checks flow.

4.6.3.5 Each traversing in-core probe system explosive isolation valve shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying the continuity of the explosive charge.

b. At least once per 24 months by removing the explosive squib from the explosive valve, such that each explosive squib in each explosive valve will be tested at least once per 120 months, and initiating the explosive squib. The replacement charge for the exploded squib shall be from the same manufactured batch as the one fired or from another batch which has been certified by having at least one of that batch successfully fired. No squib shall remain in use beyond the expiration of its shelf-life and/or operating life, as applicable.

Refer to PORC
Position # 22

TABLE 3.6.3-1

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX.ISOL. TIME.IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
003B	CONTAINMENT INSTRUMENT GAS SUPPLY - HEADER 'B'	59-2005B (CK)		NA			59
			HV59-229B	7	C,H,S		
003D-2	CONTAINMENT INSTRUMENT GAS SUPPLY TO ADS VALVES E & K	59-2112(CK)		NA			
			HV59-251B	45	M		59
007A(B,C,D)	MAIN STEAM LINE 'A'(B,C,D)	HV41-2F022A (B,C,D)		5*	C,E,F,P,Q	6	41
			HV41-2F028A (B,C,D)	5*	C,E,F,P,Q	6	
008	MAIN STEAM LINE DRAIN	HV41-2F016		30	C,E,F,P,Q	4	41
			HV41-2F019	30	C,E,F,P,Q		
009A	FEEDWATER	41-2F010A(CK)		NA			41
			HV41-2F074A(CK)	NA			
			41-2036A(CK)	NA			
			HV41-230B	45			
			HV41-233A	45			
			HV41-209A	NA		32	
			HV41-2F032A(CK)	NA			
			HV55-2F105	30		7	
			HV44-2F039(CK) (X-9B)	NA			
			41-2016(X-9B, X-44)	NA		31	

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX.ISOL. TIME.IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
009B	FEEDWATER	41-2F010B(CK)		NA			
			HV41-2F074B(CK)	NA			41
			41-2036B(CK)	NA			
			HV41-230A	45			
			HV41-233B	45			
			HV41-209B	NA		32	
			HV41-2F032B(CK)	NA			
			HV49-2F013	23	LFCC		
			HV44-2F039(CK) (X-9A)	NA			
			41-2016(X-9A, X-44)	NA		31	
010	RCIC STEAM SUPPLY	HV49-2F007		7.2*	K, KA	5	49
			HV49-2F008	7.2*	K, KA		
			HV49-2F076	45	K, KA		
011	HPCI STEAM SUPPLY	HV55-2F002		12*	L, LA	5	55
			HV55-2F003	12*	L, LA		
			HV55-2F100	45	L, LA		
012	RHR SHUTDOWN COOLING SUPPLY	HV51-2F009		100	A,V	9,22	51
		PSV51-255		NA			
			HV51-2F008	100	A,V		
013A(B)	RHR SHUTDOWN COOLING RETURN	HV51-2F050A(B) (CK)		NA	A,V	9,22	51
		HV51-251A(B)		20	A,V		
			HV51-2F015A(B)	45	A,V		
014	RWCU - SUCTION	HV44-2F001		10*	B,J,Y		44
			HV44-2F004	10*	B,J,Y		

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX.ISOL. TIME.IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
016A	CORE SPRAY INJECTION	HV52-2F006A(CK)		NA		9,22	52
		HV52-2F039A		7		9,22	
			HV52-2F005	18			
016B	CORE SPRAY INJECTION	HV52-2F006B(CK)		NA		9,22	52
		HV52-2F039B		7		9,22	
			HV52-208(CK)	NA			
021	SERVICE AIR TO DRYWELL	15-2140		NA			15
			15-2139	NA			
022	DRYWELL PRESSURE INSTRUMENTATION		HV42-247C	45		10	42
023	RECW SUPPLY TO RECIRC PUMPS	HV13-206		40	C,H	11	13
			HV13-208	30	C,H	11	
			HV13-209	NA		11,13	
024	RECW RETURN FROM RECIRC PUMPS	HV13-207		40	C,H	11	13
			HV13-211	30	C,H	11	
			HV13-210	NA		11,13	

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX.ISOL. TIME.IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
025	DRYWELL PURGE SUPPLY	HV57-221(X-201A)		5**	B,H,S,U,W,R,T	3,11,14	57
		HV57-223		5**	B,H,S,U,W,R,T	3,11,14	
			HV57-209 (X-201A)	6**	B,H,S,U,W,R,T	11	
			HV57-231 (X-201A)	5**	B,H,S,U,W,R,T	11	
			HV57-235	6**	B,H,S,U,W,R,T	11	
	HYDROGEN RECOMBINER "B" INLET	HV57-263		9	B,H,R,S	3,11,14	
			FV57-DO-201B	90	B,H,R,S	11,34	
026	DRYWELL PURGE EXHAUST	HV57-214		5**	B,H,S,U,W,R,T	3,11,14,33	57
		HV57-211		15**	B,H,S,U,R,T	11	
		SV57-239		5		10	
			HV57-215	6**	B,H,S,U,W,R,T	11,33	
			HV57-217	5**	B,H,S,U,R,T	11	
			SV57-245	5	B,H,R,S	11	
	HYDROGEN RECOMBINER "A" INLET	HV57-261		9	B,H,R,S	3,11,14	
			FV57-DO-201A	90	B,H,R,S	11,34	
027A	CONTAINMENT INSTRUMENT GAS SUPPLY TO ADS VALVES H,M,&S	59-2128(CK)		NA			59
			HV59-251A	45	M		
028A-1	RECIRC LOOP SAMPLE	HV43-2F019		10	B		43
			HV43-2F020	10	B		
028A-2	DRYWELL H2/O2 SAMPLE	SV57-232		5	B,H,R,S	11	57
			SV57-242	5	B,H,R,S	11	
028A-3	DRYWELL H2/O2 SAMPLE	SV57-234		5	B,H,R,S	11	57
			SV57-244	5	B,H,R,S	11	

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TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL TIME, IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF. APP. (20)	NOTES	P&ID
028B	DRYWELL H2/O2 SAMPLE	SV57-233		5	B,H,R,S	11	57
			SV57-243	5	B,H,R,S	11	
			SV57-295	5	B,H,R,S	11	
030B-1	DRYWELL PRESSURE INSTRUMENTATION		HV42-247A	45		10	42
035B	TIP PURGE	59-2056(CK) (DOUBLE "O" RING)		NA			59
			HV59-231	7	B,H,S	16	
035C-G	TIP DRIVES	XV59-241A-E (DOUBLE "O" RING)		NA	B,H	11,16,21	59
			XV59-240A-E	NA		11,16	
037A-D	CRD INSERT LINES	BALL CHECK		NA		12	47
			46-2101	NA		12,22	46
			46-2102	NA		12,22	
			46-2108	NA		12,22	
			46-2109	NA		12,22	
038A-D	CRD WITHDRAW LINES SDV VENTS & DRAINS		46-2115	NA		12,22	46
			46-2116	NA		12,22	
			46-2122	NA		12,22	
			46-2123	NA		12,22	
			XV47-2F010	25		30	47
			XV47-2F180	30		30	
			XV47-2F011	25		30	
			XV47-2F181	30		30	
039A(B)	DRYWELL SPRAY	HV51-2F021A(B)		160		4,11	51
			HV51-2F016A(B)	160		11	
040E	DRYWELL PRESSURE INSTRUMENTATION		HV42-247B	45		10	42
040F-2	CONTAINMENT INSTRUMENT GAS - SUCTION	HV59-201		45	C,H,S	5	59
			HV59-202	7	C,H,S		

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX.ISOL. TIME.IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
040G-1	ILRT DATA ACQUISITION	60-2057		NA		11	60
			60-2058	NA		11	
040G-2	ILRT DATA ACQUISITION	60-2071		NA		11	60
			60-2070	NA		11	
040H-1	CONTAINMENT INSTRUMENT GAS SUPPLY - HEADER 'A'	59-2005A(CK)		NA			59
			HV59-229A	7	C,H,S		
042	STANDBY LIQUID CONTROL	48-2F007(CK) (X-116)		NA			48
			HV48-2F006A	60		29	
043B	MAIN STEAM SAMPLE	HV41-2F084		10	B		41
			HV41-2F085	10	B		
044	RWCU ALTERNATE RETURN	41-2017		NA		5,31	41
			41-2016(X-9A, X-9B)	NA			
			PSV41-212	NA			
045A(B,C,D)	LPCI INJECTION 'A'(B,C,D)	HV51-2F041A(B,C, D)(CK)		NA		9,22	51
		HV51-242A(B,C, D)		7		9,22	
			HV51-2F017A (B,C,D)	38			
050A-1	DRYWELL PRESSURE INSTRUMENTATION		HV42-247B	45		10	42
053	DRYWELL CHILLED WATER SUPPLY - LOOP 'A'	HV87-228		60	C,H	11	87
			HV87-220A	60	C,H	11	
			HV87-225A	60	C,H	11	

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
054	DRYWELL CHILLED WATER RETURN - LOOP 'A'	HV87-229		60	C,H	11	87
			HV87-221A	60	C,H	11	
			HV87-224A	60	C,H	11	
055	DRYWELL CHILLED WATER SUPPLY - LOOP 'B'	HV87-222		60	C,H	11	87
			HV87-220B	60	C,H	11	
			HV87-225B	60	C,H	11	
056	DRYWELL CHILLED WATER RETURN - LOOP 'B'	HV87-223		60	C,H	11	87
			HV87-221B	60	C,H	11	
			HV87-224B	60	C,H	11	
061-1	RECIRC PUMP 'A' SEAL PURGE	43-2004A(CK)		NA		15	43
			(XV43-203A - SEE PART B, THIS TABLE)	NA		1	
061-2	RECIRC PUMP 'B' SEAL PURGE	43-2004B(CK)		NA		15	43
			(XV43-203B - SEE PART B, THIS TABLE)	NA		1	
062	DRYWELL H2/O2 SAMPLE RETURN, N2 MAKE-UP	SV57-250(X-220A)		5	B,H,R,S	11	57
			SV57-259 (X-220A)	5	B,H,R,S	11	
			HV57-216 (X-220A)	30**	B,H,R,S	11	
			SV57-290 (X-220A)	5	B,H,R,S	11	

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX.ISOL. TIME.IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
			SV57-291 (X-220A)	5	B,H,R,S	11	
116	STANDBY LIQUID CONTROL	48-2F007(CK) (X-42)		NA			48
			HV48-2F006B	60		29	
117B-1	DRYWELL RADIATION MONITORING SUPPLY	SV26-290A		5	B,H,R,S	11	26
			SV26-290B	5	B,H,R,S	11	
117B-2	DRYWELL RADIATION MONITORING RETURN	SV26-290C		5	B,H,R,S	11	26
			SV26-290D	5	B,H,R,S	11	
201A	SUPPRESSION POOL PURGE SUPPLY	HV57-224		5**	B,H,S,U,W,R,T	3,11,14	57
		HV57-231(X-25)		5**	B,H,S,U,W,R,T	3,11,14	
			HV57-209(X-25)	6**	B,H,S,U,W,R,T	11	
			HV57-247	6**	B,H,S,U,W,R,T	11	
			HV57-221(X-25)	5**	B,H,S,U,W,R,T	11	
	HYDROGEN RECOMBINER "B" EXHAUST	HV57-264		9	B,H,R,S	3,11,14	
			HV57-269	9	B,H,R,S	11	
202	SUPPRESSION POOL PURGE EXHAUST	HV57-204		5**	B,H,S,U,W,R,T	3,11,14,33	57
		HV57-205		15**	B,H,S,U,R,T	11	
			HV57-212	6**	B,H,S,U,W,R,T	11, 33	
			HV57-218	5**	B,H,S,U,R,T	11	
			SV57-285	5	B,H,R,S	11	
	HYDROGEN RECOMBINER "A" EXHAUST	HV57-262		9	B,H,R,S	3,11,14	
			HV57-266	9	B,H,R,S	11	
203A(B,C,D)	RHR PUMP SUCTION		HV51-2F004A (B,C,D)	240		6,22, 29	51
			PSV51-2F030A (B,C,D)	NA		19,22	

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
204A(B)	RHR PUMP TEST LINE AND CONTAINMENT COOLING		HV51-225A(B)	180		4,22,29	51
205A(B)	SUPPRESSION POOL SPRAY		HV51-2F027A(B)	45	C,C	11	51
206A(B,C,D)	CS PUMP SUCTION		HV52-2F001A (B,C,D)	160		4,22,29	52
207A(B)	CS PUMP TEST AND FLUSH		HV52-2F015A(B)	23	C,G	5,22	52
208B	CS PUMP MINIMUM RECIRC		HV52-2F031B	45	LFCH	5,22,29	52
209	HPCI PUMP SUCTION		HV55-2F042	160	L,LA	4,22	55
210	HPCI TURBINE EXHAUST		HV55-2F072	120		4,22,29	55
212	HPCI PUMP TEST AND FLUSH		HV55-2F071	40	B,H	4,22	55
214	RCIC PUMP SUCTION		HV49-2F031	60		4,22,29	49
215	RCIC TURBINE EXHAUST		HV49-2F060	80		4,22,29	49
216	RCIC MINIMUM FLOW		HV49-2F019	8	LFRC	5,22	49

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
217	RCIC VACUUM PUMP DISCH	HV49-2F002		60		5,29	49
			49-2F028(CK)	NA			
218	INSTRUMENT GAS TO VACUUM RELIEF VALVES	59-2001(CK)		NA			59
			HV59-235	7	C,H,S		
219A	INSTRUMENTATION - SUPPRESSION POOL LEVEL	--	HV55-221	45		10	55
219B	INSTRUMENTATION - SUPPRESSION POOL LEVEL	--	HV55-220	45		10	55
220A	H2/O2 SAMPLE RETURN	SV57-291(X-62)		5	B,H,R,S	11	57
			SV57-290(X-62)	5	B,H,R,S	11	
			HV57-216(X-62)	30**	B,H,R,S	11	
			SV57-250(X-62)	5	B,H,R,S	11	
			SV57-259(X-62)	5	B,H,R,S	11	
221A	WETWELL H2/O2 SAMPLE	SV57-281		5	B,H,R,S	11	57
			SV57-241	5	B,H,R,S	11	
			SV57-284	5	B,H,R,S	11	
221B	WETWELL H2/O2 SAMPLE	SV57-283		5	B,H,R,S	11	57
			SV57-286	5	B,H,R,S	11	

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX.ISOL. TIME.IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P & ID
226A	RHR MINIMUM RECIRC		HV51-205A	40		4,22,29	51
226B	RHR MINIMUM RECIRC		HV51-205B	40		4,22,29	51
227	ILRT DATA ACQUISITION SYSTEM	60-2073		NA			60
			60-2074	NA			
228D	HPCI VACUUM RELIEF	HV55-2F095		40	H,LA	4,11,24	55
			HV55-2F093	40	H,LA	11,24	
229A	INSTRUMENTATION - SUPPRESSION POOL PRESSURE SUPPRESSION POOL LEVEL	--	SV57-201	5		10	57
230B	INSTRUMENTATION - DRYWELL SUMP LEVEL	--	HV61-212	45		23,29	61
			HV61-232	45		23,29	
231A	DRYWELL FLOOR DRAIN SUMP DISCHARGE	HV61-210		30	B,H	11,22	61
			HV61-211	30	B,H	11,22	
231B	DRYWELL EQUIPMENT DRAIN TANK DISCHARGE	HV61-230		30	B,H	11,22	61
			HV61-231	30	B,H	11,22	
235	CS PUMP MINIMUM RECIRC		HV52-2F031A	45	LFCH	5,22,29	52
236	HPCI PUMP MINIMUM RECIRC		HV55-2F012	15	LFHP	5,22	55

TABLE 3.6.3-1 (Continued)

PART A - PRIMARY CONTAINMENT ISOLATION VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX.ISOL. TIME.IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P & ID
237-1	SUPPRESSION POOL CLEANUP PUMP SUCTION	HV52-227		60	B,H	4,11,22	52
			PSV52-227	NA		11,22	
			HV52-228	60	B,H	11,22	
237-2	SUPPRESSION POOL LEVEL INSTRUMENTATION		HV52-239	45		10	52
			SV52-239	6		10	
238	RHR RELIEF VALVE DISCHARGE		HV-C-51-2F104B	18	C,G		51
			PSV51-206B	NA		19	
239	RHR RELIEF VALVE DISCHARGE		HV-C-51-2F103A	18	C,G		51
			PSV51-206A	NA		19	
241	RCIC VACUUM RELIEF	HV49-2F084		40	H,KA	4,11,24	49
			HV49-2F080	40	H,KA	11,24	

TABLE 3.6.3-1 (Continued)

PART B - PRIMARY CONTAINMENT ISOLATION EXCESS FLOW CHECK VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX.ISOL. TIME.IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
003A-1	INSTRUMENTATION - 'D' MAIN STEAM LINE FLOW	--	XV41-2F070D XV41-2F073D			1	41
003A-2	INSTRUMENTATION - 'A' RECIRC PUMP SEAL PRESSURE	--	XV43-2F003A			1	43
003C-1	INSTR. - HPCI STEAM FLOW	--	XV55-2F024A			1	55
003C-2	INSTR. - HPCI STEAM FLOW	--	XV55-2F024C			1	55
003D-1	INSTR. - 'A' MAIN STEAM LINE FLOW	--	XV41-2F070A XV41-2F073A			1	41
007A(B,C,D)	INSTR. - 'A'(B,C,D) MAIN STEAM LINE PRESSURE	(HV41-2F022A(B, C,D) SEE PART A THIS TABLE)	(HV41-2F028A (B,C,D)	5* 5*	C,E,F,P,Q C,E,F,P,Q	6 6	41
020A-1	INSTR - RPV LEVEL	--	XV42-2F045B			1	42
020A-2	INSTR - 'B' LPCI DELTA P	--	XV51-202B			1	51
020A-3	INSTR - 'D' LPCI DELTA P	--	XV51-203B			1	51
020B-1	INSTR - RPV LEVEL	--	XV42-2F045C			1	42
020B-2	INSTR - 'C' LPCI DELTA P	--	XV51-202C			1	51

Refer to PORC
Position # 22

Refer to PORC Position # 22

TABLE 3.6.3-1 (Continued)

PART B - PRIMARY CONTAINMENT ISOLATION EXCESS FLOW CHECK VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME, IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
027B-1	INSTR - HPCI FLOW	--	XV55-2F024B			1	55
027B-2	INSTR - HPCI FLOW	--	XV55-2F024D			1	55
029A	INSTR - RPV FLANGE LEAKAGE	--	XV41-2F009			1,27	41
029B	INSTR - CS DELTA P	--	XV52-2F018A			1	52
030A	INSTR - 'D' MAIN STEAM FLOW	--	XV41-2F071D XV41-2F072D			1	41
030B-2	INSTR - 'C' MAIN STEAM LINE FLOW	--	XV41-2F071C XV41-2F072C			1	41
031A	INSTR - JET PUMP FLOW	--	XV42-2F059B (JP1) XV42-2F059D (JP2) XV42-2F059F (JP3)			1	42
031B	INSTR - JET PUMP FLOW	--	XV42-2F059H (JP4) XV42-2F051B (JP5) XV42-2F053B (JP5)			1	42

Refer to PORC Position # 22

TABLE 3.6.3-1 (Continued)

PART B - PRIMARY CONTAINMENT ISOLATION EXCESS FLOW CHECK VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
032A	INSTR - JET PUMP FLOW	--	XV42-2F059M (JP6) XV42-2F059P (JP7) XV42-2F059S (JP8)			1	42
032B	INSTR - JET PUMP FLOW	--	XV42-2F059U (JP9) XV42-2F051D (JP10) XV42-2F053D (JP10)			1	42
033A-1	INSTR-PRESSURE ABOVE CORE PLATE	--	XV42-2F055 XV42-2F076			1	42
033A-2	INSTR-PRESSURE BELOW CORE PLATE	--	XV42-2F061			1	42
033B	INSTR-RCIC STEAM FLOW	--	XV49-2F044A,C			1	49
034A	INSTR - 'C' MAIN STEAM LINE FLOW	--	XV41-2F070C XV41-2F073C			1	41
034B-1	INSTR - RECIRC FLOW	--	XV43-2F009C XV43-2F010D			1	43
034B-2	INSTR - RECIRC FLOW	--	XV43-2F009D XV43-2F010C			1	43

Refer to PORC Position # 22

TABLE 3.6.3-1 (Continued)

PART B - PRIMARY CONTAINMENT ISOLATION EXCESS FLOW CHECK VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
040A	INSTR - JET PUMP FLOW	--	XV42-2F059L (JP16) XV42-2F059N (JP17) XV42-2F059R (JP18)			1	42
040B	INSTR - JET PUMP FLOW	--	XV42-2F059G (JP14) XV42-2F051A (JP15) XV42-2F053A (JP15)			1	42
040C	INSTR - JET PUMP FLOW	--	XV42-2F059A (JP11) XV42-2F059C (JP12) XV42-2F059E (JP13)			1	42
040D-1	INSTR - PRESSURE BELOW CORE PLATE	--	XV42-2F057			1	42
040D-2	INSTR - RWCU BOTTOM DRAIN FLOW	--	XV44-270 XV44-271			1	44

Refer to PORC Position # 22

TABLE 3.6.3-1 (Continued)

PART B - PRIMARY CONTAINMENT ISOLATION EXCESS FLOW CHECK VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
040F-1	INSTR - RCIC STEAM FLOW	--	XV49-2F044B XV49-2F044D			1	49
040H-2	INSTR 'B' RECIRC PUMP COOLER FLOW	--	XV87-256B XV87-257B			17	87
041-1	INSTR - RWCU FLOW	--	XV44-202A,B			1	44
041-2	INSTR - 'A' LPCI DELTA P	--	XV51-203A			1	51
043A	INSTR - RECIRC LOOP 'A' DELTA P	--	XV43-2F040A,C			1	43
047	INSTR - RWCU FLOW	--	XV44-202D			1	44
048A-1	INSTR - RPV LEVEL	--	XV42-2F065B XV42-2F047B			1	42
048A-2	INSTR - CS DELTA P	--	XV52-2F018B			1	52
048B	INSTR - RPV LEVEL	--	XV42-2F065A XV42-2F047A			1	42
049A,B	INSTR - 'A' AND 'B' MAIN STEAM LINE FLOW	--	XV41-2F071A,B XV41-2F072A,B			1	41
050A-2	INSTR 'B' RECIRC FLOW	--	XV43-2F011A XV43-2F012B			1	43

Refer to PORC Position # 22

TABLE 3.6.3-1 (Continued)

PART B - PRIMARY CONTAINMENT ISOLATION EXCESS FLOW CHECK VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX.ISOL. TIME.IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
050A-3	INSTR 'B' RECIRC FLOW	--	XV43-2F011B XV43-2F012A			1	43
050B-1	INSTR - 'A' RECIRC PUMP SEAL PRESSURE	--	XV43-2F004A			1	43
050B-2	INSTR - 'A' RECIRC PUMP COOLER FLOW	--	XV87-256A XV87-257A			17	87
051A-1	INSTR - 'A' RECIRC LINE FLOW	--	XV43-2F009A XV43-2F010B			1	43
051A-2	INSTR - 'A' RECIRC LINE FLOW	--	XV43-2F009B XV43-2F010A			1	43
051B	INSTR - JET PUMP FLOW	--	XV42-2F059T (JP19) XV42-2F051C (JP20) XV42-2F053C (JP20)			1	42
052A	INSTR - 'B' MAIN STEAM LINE FLOW	--	XV41-2F070B XV41-2F073B			1	41
052B-1	INSTR - 'B' RECIRC LINE FLOW	--	XV43-2F011C,D			1	43
052B-2	INSTR - 'B' RECIRC LINE FLOW	--	XV43-2F012C,D			1	43
057	INSTR - RWCU FLOW	--	XV44-202C			1	44

TABLE 3.6.3-1 (Continued)

PART C - PRIMARY CONTAINMENT PENETRATIONS (TYPE B)

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
NA	DRYWELL HEAD FLANGE	DOUBLE O-RING	--	--	--	2	60
001	EQUIPMENT ACCESS DOOR	DOUBLE O-RING	--	--	--	2	60
002	EQUIPMENT ACCESS DOOR AND PERSONNEL LOCK	DOUBLE O-RING	--	--	--	2,18	60
004	HEAD ACCESS MANHOLE	DOUBLE O-RING	--	--	--	2	60
006	CRD REMOVAL HATCH	DOUBLE O-RING	--	--	--	2	60
100A-D	NEUTRON MONITORING SYSTEM	CANISTER	--	--	--	8	60
101A-D	RECIRC PUMP POWER	CANISTER	--	--	--	8	60
103A,B	TEMPERATURE AND LOW LEVEL SIGNALS	CANISTER	--	--	--	8	60
104A-D	CRD POSITION INDICATOR	CANISTER	--	--	--	8	60
105A-E	MISCELLANEOUS LOW-VOLTAGE CONTROL POWER	CANISTER	--	--	--	8	60
106A-C	LOW-VOLTAGE CONTROL	CANISTER	--	--	--	8	60

TABLE 3.6.3-1 (Continued)

PART C - PRIMARY CONTAINMENT PENETRATIONS (TYPE B)

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
200A,B	ACCESS HATCH	DOUBLE O-RING	--	--	--	2	60
222	INDICATION AND CONTROL	CANISTER	--	--	--	8	60
230A	STRAIN GAUGE INSTR.	CANISTER	--	--	--	8	60

Refer to PC?C Position # 22

TABLE 3.6.3-1 (Continued)

PART B - PRIMARY CONTAINMENT ISOLATION EXCESS FLOW CHECK VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME, IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
058A	INSTR - RECIRC LOOP 'B' DELTA P	--	XV43-2F040B			1	43
061-1	RECIRC PUMP SEAL PURGE	(43-2004A(CK) - See Part A of this table)	XV43-203A			15 1	43
061-2	RECIRC PUMP SEAL PURGE	(43-2004B(CK) See Part A of this table)	XV43-203B			15 1	43
063-1	INSTR - RECIRC LOOP 'B' DELTA P	--	XV43-2F040D			1	43
063-2	INSTR - 'B' RECIRC PUMP SEAL PRESSURE	--	XV43-2F004B XV43-2F003B			1	43
065A	INSTR - RPV PRESSURE	--	XV42-2F043B			1	42
065B	INSTR - RPV PRESSURE	--	XV42-2F049A			1	42
066A-1	INST-RPV LEVEL	--	XV42-2F045D			1	42
066A-2	INSTR - 'B' LPCI DELTA P	--	XV51-202D XV51-203D			1	51
066B-1	INST - RPV LEVEL	--	XV42-2F045A			1	42
066B-2	INST - 'A' LPCI DELTA P	--	XV51-202A XV51-203C			1	51
067A	INSTR - RPV PRESSURE	--	XV42-2F049B			1	42

Refer to PORC Position # 22

TABLE 3.6.3-1 (Continued)

PART B - PRIMARY CONTAINMENT ISOLAION EXCESS FLOW CHECK VALVES

PENETRATION NUMBER	FUNCTION	INBOARD ISOLATION BARRIER	OUTBOARD ISOLATION BARRIER	MAX. ISOL. TIME. IF APP. (SEC)(26)	ISOL. SIGNAL(S), IF APP. (20)	NOTES	P&ID
067B-1	INSTR - RPV PRESSURE	--	XV42-2F043A			1	42
067B-2	INSTR - RPV LEVEL	--	XV42-2F041			1	42
102A	INST - JET PUMP, REACTOR LEVEL	--	XV42-285A(JP15)			1	42
107	INST. - JET PUMP, REACTOR LEVEL	--	XV42-285B(JP5)			1	42

NOTES

1. Instrumentation line isolation provisions consist of an orifice and excess flow-check valve or remote manual isolation valve. The excess flow-check valve is subjected to operability testing, but no Type C test is performed or required. The line does not isolate during a LOCA and can leak only if the line or instrument should rupture. Leaktightness of the line is verified during the integrated leak rate test (Type A test).

2. Penetration is sealed by a blind flange or door with double O-ring seals. These seals are leakage rate tested by pressurizing between the O-rings.

3. Inboard butterfly valve tested in the reverse direction.

4. Inboard gate valve tested in the reverse direction.

5. Inboard globe valve tested in the reverse direction.

6. The MSIVs and this penetration are tested by pressurizing between the valves. Testing of the inboard valve in the reverse direction tends to unseat the valve and is therefore conservative. The valves are Type C tested at a test pressure of 22 psig.

7. Gate valve tested in the reverse direction.

8. Electrical penetrations are tested by pressurizing between the seals.

9. The isolation provisions for this penetration consist of two isolation valves and a closed system outside containment. Because a water seal is maintained in these lines by the safeguard piping fill system, the inboard valve may be tested with water. The outboard valve will be pneumatically tested.

10. The valve does not receive an isolation signal but remains open to measure containment conditions post-LOCA. Leaktightness of the penetration is verified during the Type A test. Type C test is not required.

11. All isolation barriers are located outside containment.

12. Leakage monitoring of the control rod drive insert and withdraw line is provided by Type A leakage rate test. The outboard isolation provisions for the control rod insert and withdraw lines consist of two redundant Type C tested simple check valves located on each main water header (i.e. charging, cooling, drive and exhaust). Type C test is not required for the ball check valve.

13. The motor operators on HV-13-209 and HV-13-210 are not connected to any power supply.

14. Valve is provided with a separate testable seal assembly, with double concentric O-ring seals installed between the pipe flange and valve flange facing primary containment. Leakage through these seals is included within the Type C leakage rate for this penetration.

TABLE 3.6.3-1
PRIMARY CONTAINMENT ISOLATION VALVES
NOTATION

NOTES (Continued)

15. Check valve used instead of flow orifice.

16. Penetration is sealed by a flange with double O-ring seals. These seals are leakage rate tested by pressurizing between the O-rings. Both the TIP Purge Supply (Penetration 35B) and the TIP Drive Tubes (Penetrations 35C thru G) are welded to their respective flanges. Leakage through these seals is included in the Type C leakage rate total for this penetration. The ball valves (XV-241A thru E) are Type C tested. It is not practicable to leak test the shear valves (XV-240A thru E) because squib firing is required for closure. Shear valves (XV-240A thru E) are normally open.

17. Instrument line isolation provisions consist of an excess flow check valve. Because the instrument line is connected to a closed cooling water system inside containment, no flow orifice is provided. The excess flow check valves are subject to operability testing, but no Type C test is performed nor required. The line does not isolate during a LOCA and can leak only if the line or instrument should rupture. Leaktightness of the line is verified during the integrated leak rate test (Type A test).

18. In addition to double "O" ring seals, this penetration is tested by pressurizing volume between doors per Specification 4.6.1.3.

19. The RHR system safety pressure relief valves are flanged to facilitate removal and are equipped with double O-ring seal assemblies on the flange closest to primary containment. These seals will be leak rate tested by pressurizing between the O-rings, and the results added into the Type C total for this penetration.

20. See Specification 3.3.2, Table 3.3.2-1, for a description of the PCRVICS isolation signal(s) that initiate closure of each automatic isolation valve. In addition, the following non-PCRVICS isolation signals also initiate closure of selected valves:

    EA Main steam line high pressure, high steam line leakage flow, low MSIV-LCS dilution air flow

    LFHP With HPCI pumps running, opens on low flow in associated pipe, closes when flow is above setpoint

    LFRC With RCIC pump running, opens on low flow in associated pipe, closes when flow is above setpoint

    LFCH With CSS pump running, opens on low flow in associated pipe, closes when flow is above setpoint

    LFCC Steam supply valve fully closed or RCIC turbine stop valve fully closed

All power operated isolation valves may be opened or closed remote manually.

TABLE 3.6.3-1
PRIMARY CONTAINMENT ISOLATION VALVES
NOTATION

NOTES (Continued)

21. Automatic isolation signal causes TIP to retract; ball valve closes when probe is fully retracted.

22. Isolation barrier remains water filled or a water seal remains in the line post-LOCA. Isolation valve may be tested with water. Isolation valve leakage is not included in 0.60 La total Type B & C tests.

23. Valve does not receive an isolation signal. Valves will be open during Type A test. Type C test not required.

24. Both isolation signals required for valve closure.

25. Deleted

26. Valve stroke times listed are maximum times verified by testing per Specification 4.0.5 acceptance criteria. The closure times for isolation valves in lines in which high-energy line breaks could occur are identified with a single asterisk. The closure times for isolation valves in lines which provide an open path from the containment to the environs are identified with a double asterisk.

27. The reactor vessel head seal leak detection line (penetration 29A) excess flow check valve is not subject to OPERABILITY testing. This valve will not be exposed to primary system pressure except under the unlikely conditions of a seal failure where it could be partially pressurized to reactor pressure. Any leakage path is restricted at the source; therefore, this valve need not be OPERABILITY tested.

28. (DELETED)

29. Valve may be open during normal operation; capable of manual isolation from control room. Position will be controlled procedurally.

30. Valve normally open, closes on scram signal.

31. Valve 41-2016 is an outboard isolation barrier for penetrations X-9A, B and X-44. Leakage through valve 41-2016 is included in the total for penetration X-44 only.

32. Feedwater long path recirculation valves are sealed closed whenever the reactor is critical and reactor pressure is greater than 600 psig. The valves are expected to be opened only in the following instances:

    a. Flushing of the condensate and feedwater systems during plant startup.

    b. Reactor pressure vessel hydrostatic testing, which is conducted following each refueling outage prior to commencing plant startup.

    Therefore, valve stroke timing in accordance with Specification 4.0.5 is not required.

33. Valve also constitutes a Unit 1 Reactor Enclosure Secondary Containment Automatic Isolation Valve and a Refueling Area Secondary Containment Automatic Isolation Valve as shown in Table 3.6.5.2.1-1 and Table 3.6.5.2.2-1, respectively.

34. Isolation signal causes recombiner to trip; valve closes when recombiner is not operating.

3/4.6.4 VACUUM RELIEF

SUPPRESSION CHAMBER - DRYWELL VACUUM BREAKERS

LIMITING CONDITION FOR OPERATION

3.6.4.1 Three pairs of suppression chamber - drywell vacuum breakers shall be OPERABLE and all suppression chamber - drywell vacuum breakers shall be closed.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

a. With one or more vacuum breakers in one of the three required pairs of suppression chamber - drywell vacuum breaker pairs inoperable for opening but known to be closed, restore at least one inoperable pair of vacuum breakers to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. With one suppression chamber - drywell vacuum breaker open, verify the other vacuum breaker in the pair to be closed within 2 hours; restore the open vacuum breaker to the closed position within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

c. With one position indicator of any suppression chamber - drywell vacuum breaker inoperable:

   1. Verify the other vacuum breaker in the pair to be closed within 2 hours and at least once per 15 days thereafter, or

   2. Verify the vacuum breaker(s) with the inoperable position indicator to be closed by conducting a test which demonstrates that the ΔP is maintained at greater than or equal to 0.7 psi for one hour without makeup within 24 hours and at least once per 15 days thereafter.

   Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

**LEVEL I
CONTINUOUS USE**

1-22-96

PECO ENERGY COMPANY
LIMERICK GENERATING STATION
EMERGENCY RESPONSE PROCEDURE

ERP-101 CLASSIFICATION OF EMERGENCIES

1.0 RESPONSIBILITIES

1.1 Shift Manager
OR designated alternate implement procedure as Emergency Director until relieved.

1.2 Plant Manager
OR designated alternate:

1.2.1 Relieves acting Emergency Director.

1.2.2 Assumes role of Emergency Director.

1.2.3 Implements procedure.

2.0 INITIAL ACTIONS

NOTE:	THE JUDGEMENT OF THE EMERGENCY DIRECTOR OR EMERGENCY RESPONSE MANAGER TAKES PRECEDENCE OVER GUIDANCE IN THE PROCEDURE.

2.1 Emergency Director shall:

2.1.1 Select categories appropriate for station events OR conditions.

Page Number

HAZARDS TO STATION OPERATION 6
ENVIRONMENTAL 7
LOSS OF POWER 8
PERSONNEL INJURY 9
FIRE 10
RADIOACTIVE EFFLUENT RELEASE 11
EVACUATION OF CONTROL ROOM 12
DAMAGE TO FUEL 13
INSTRUMENT OR COMMUNICATION FAILURE 14
SCRAM FAILURE 15
BOUNDARY DEGRADATION/LOCA 16

)TE:	IDENTIFICATION AND CLASSIFICATION OF EMERGENCIES SHOULD BE ACCOMPLISHED WITHIN 15 MINUTES AFTER THE APPLICABLE EMERGENCY ACTION LEVELS (EALs) ARE MET.

2.1.2 Review Emergency Action Level (EALs) for categories selected.

2.1.3 IF event trigger is known to be spurious, THEN do not classify event i.e., false high reading, false chlorine monitor readings, etc.

2.1.4 Classify event based on selected categories AND most severe EALs.

2.1.5 IF the event(s) OR condition(s) classifies as an emergency, THEN implement ERP-200, Emergency Director (ED) Response.

) CONTINUING ACTIONS

3.1 IF Unusual Event classification is determined, THEN provide NRC a written summary within 24 hours of Close-out.

3.2 Periodically evaluate event classification against existing plant conditions (EALs).

3.3 If a higher Emergency Classification is reached, THEN re-enter ERP-200, AND direct notifications per ERP-110.

)TE:	ADDITIONAL EVENTS WHICH DO NOT CHANGE THE EMERGENCY CLASSIFICATION ARE COMMUNICATED TO GOVERNMENTAL AGENCIES PER NORMAL EVENT CHRONOLOGY COMMUNICATIONS.

)TE:	IT IS PREFERABLE TO OBTAIN EMERGENCY RESPONSE MANAGER CONCURRENCE PRIOR TO DE-ESCALATION.

3.4 Escalate\de-escalate emergency classification as needed.

3.5 WHEN the emergency has been controlled, AND plant is in a safe shutdown condition, THEN:

3.5.1 Determine whether recovery phase is justifiable:

3.5.1.1 Evaluate plant operating conditions.

3.5.1.2 Evaluate radiological conditions.

3.5.1.3 The ED shall enter the recovery phase with concurrence from the Emergency Response

3.6 Provide NRC a written summary within eight hours of closeout OR de-escalation per ERP-106, Written Summary Notification.

) FINAL CONDITIONS

4.1 Emergency conditions have been terminated AND affected unit has been placed in a safe condition.

4.2 ERP-C-1900, Recovery Phase Implementation has been implemented.

) ATTACHMENTS AND APPENDICES

5.1 ERP-101-1, Hazards to Station Operation

5.2 ERP-101-2, Environmental

5.3 ERP-101-3, Loss of Power

5.4 ERP-101-4, Personnel Injury

5.5 ERP-101-5, Fire

5.6 ERP-101-6, Radioactive Effluent Release

5.7 ERP-101-7, Evacuation of Control Room

5.8 ERP-101-8, Damage to Fuel

5.9 ERP-101-9, Instrument or Communication Failure

5.10 ERP-101-10, Scram Failure

5.11 ERP-101-11, Boundary Degradation/LOCA

5.12 ERP-101-12, Unusual Shutdown

5.13 ERP-101-13, Loss of Hot or Cold Shutdown Capability

5.14 ERP-101-14, Security

5.15 ERP-101-15, Terms and Definitions

) SUPPORTING INFORMATION

6.1 Purpose

6.1.1 Provide guidelines for classifying an event or condition into one of four emergency classifications described in Emergency Plan.

6.2 Criteria For Use

6.2.1 Implement whenever conditions meet OR exceed Emergency Action Levels (EALs) listed in ERP-101 Classification Tables.

> OTE: ISSUANCE OF A PAR REQUIRES A GENERAL EMERGENCY CLASSIFICATION AND CONVERSELY A GENERAL EMERGENCY CLASSIFICATION REQUIRES THE ISSUANCE OF A PAR.

6.2.2 PAR information in the tables, is expected to be used when an event rapidly progresses to a General Emergency or when the PAR is based only on plant conditions. Dose Assessment based PAR information may be obtained from ERP-300, TSC/MCR Dose Assessment Team, or the Dose Assessment Team Leader. In either case, the most conservative PAR available is to be used.

6.2.3 Whenever the Emergency Operations Facility (EOF) is activated and the Emergency Response Manager (ERM) is in charge, then determine Protective Action Recommendation (PAR) in conjunction with the Emergency Response Manager.

6.3 Special Equipment

6.3.1 None

6.4 References

6.4.1 Limerick Generating Station Emergency Plan

6.4.2 NUREG 0654, Rev. 2 Criteria for Preparations and Evaluation of Radiological Emergency Response Plans in Support of Nuclear Power Plants

6.4.3 ERP-110, Emergency Notification

6.4.4 ERP-106, Written Summary Notification

6.4.5 ERP-200, Emergency Director (ED) Response

6.4.6 ERP-300, TSC/MCR Dose Assessment Team

6.4.9 LGS - Technical Specifications

6.4.10 T-101, Reactor Pressure Vessel Control

6.4.11 T-102, Containment Control

6.4.12 T-104, Radioactivity Release Control

6.4.13 Offsite Dose Calculation Manual

6.4.14 US NRC Response Technical Manual, April 1991, Section I (General Emergency Protective Action Recommendations)

6.4.15 10CFR20 Standards for Protection Against Radiation

6.4.16 EPA-400-R-92-001 Oct. 1991, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents

6.4.17 NUREG-0818 Emergency Action Levels for Light Water Reactors (1981 - Draft)

6.5 Commitment Annotation

6.5.1 Action Item Q0003158 (Boundary Degradation/LOCA EAL Set for General Emergency Classification, Appendix ERP-101-11)

6.5.2 OEAP A0370948 AE02 (Radioactive Effluent Release EAL Set, Appendix ERP-101-6)

6.5.3 A/R A0843199 Eval. 67 (Boundary Degradation/LOCA EAL set, Appendix ERP-101-11)

6.5.4 PEP Issue I0002326 Eval 15 (Radioactive Effluent Release EAL set, Appendix ERP-101-6)

Appendix ERP-101-1
HAZARDS TO STATION OPERATION

UNUSUAL EVENT	1. Aircraft crash onsite <u>OR</u> unusual aircraft activity over the site. 2. Train derailment within site boundary. 3. Explosion within or near site boundary. 4. Nearby or onsite release of potentially harmful quantities of toxic, flammable gas or chlorine.
ALERT	1. Entry of toxic, flammable gases <u>OR</u> chlorine into power block with subsequent habitability problem. Indicated by: Visual observation, direct measurement <u>OR</u> notification received by Control Room. 2. <u>IF</u> both units are in cold shutdown <u>THEN</u>: a. Aircraft crash or missile impact on Reactor Enclosure, Control Enclosure, Turbine Enclosure, Diesel Generator Enclosure, Spray Pond Pump House. 3. Known explosion damage affecting plant operation.
SITE AREA EMERGENCY	1. Entry of toxic, flammable gases <u>OR</u> chlorine into vital areas, where lack of access constitutes a reactor safety problem. Indicated by: a. Shift Supervision evaluation <u>AND</u> b. Visual observation, direct measurement, notification received by Control Room. 2. <u>IF</u> either unit is not in cold shutdown <u>THEN</u> a. Aircraft crash or missile impact on Reactor Enclosure, Control Enclosure, Turbine Enclosure, Diesel Enclosure or Spray Pond Pump House. 3. Known explosion causing severe damage to safe shutdown equipment.
GENERAL EMERGENCY	N/A

Appendix ERP-101-2
ENVIRONMENTAL

UNUSUAL EVENT	1. Actual earthquake detected by Seismic Monitoring System (00C693) at or below operating basis earthquake (.075g). 2. A tornado is observed within or near site boundary. 3. A National Weather Service hurricane warning is issued for Montgomery County.
ALERT	1. Actual earthquake detected by Seismic Monitoring System (00C693) beyond operating basis earthquake (.075q). 2. Tornado strikes: Reactor Enclosure, Turbine Enclosure, Spray Pond Pump House, Control Enclosure, Diesel Generator Enclosure. 3. Sustained high winds greater than 70 mph as indicated on 0BC699.
SITE AREA EMERGENCY	<u>IF</u> either unit is not in cold shutdown <u>THEN</u>: 1. Sustained high winds greater than 90 mph as indicated on 0BC699. <u>OR</u> 2. Actual earthquake detected by Seismic Monitoring System (00C693) beyond safe shutdown earthquake (.15g).
GENERAL EMERGENCY	N/A

Appendix ERP-101-3
LOSS OF POWER

UNUSUAL EVENT	1.	Loss of all off-site power greater than 60 seconds.
	2.	Loss of all emergency AC power <u>capability</u> for greater than 60 seconds (e.g. Offsite power is feeding station, but all 4 diesel generators unavailable) with fuel in reactor vessel.
ALERT	1.	Loss of all offsite power for greater than 60 seconds <u>AND</u> Loss of all emergency AC power for greater than 60 seconds.
	2.	Loss of all safeguard DC power for greater than 60 seconds.
SITE AREA EMERGENCY	1.	Loss of all offsite power for greater than 15 minutes <u>AND</u> Loss of all emergency AC power for greater than 15 minutes.
	2.	Loss of all safeguard DC power for greater than 15 minutes.
ENERAL EMERGENCY	1.	Loss of all Offsite power <u>AND</u> Loss of all emergency AC power <u>AND</u> Loss of RPV makeup capability such that RPV level cannot be maintained above TAF. ***PAR*** **Evacuate 2 mile radius, evacuate affected sector(s) and 2 adjacent sectors for 2-5 miles.**

Appendix ERP-101-4
PERSONNEL INJURY

UNUSUAL EVENT	1. Transportation of contaminated injured individual from site to off-site hospital.
ALERT	N/A
SITE AREA EMERGENCY	N/A
ENERAL EMERGENCY	N/A

Appendix ERP-101-5
FIRE

UNUSUAL EVENT	1. Fires involving permanent plant structures in the protected area lasting 10 minutes or more.
ALERT	1. Fire which could make any of the following engineered safety (ESF) systems inop: - Class IE Power system - Safety related equipment room coolers - Drywell Unit Coolers - MSIV-LCS - HPCI - ADS - CAC - SGTS - LPCI - RERS - ESW - Core Spray - RHR Containment Spray - RHR Supp. Pool Cooling - RHR Service Water - Reactor Enclosure Isolation System - Habitability & control Room Isolation - Primary Containment & reactor vessel isolation control system - Control Enclosure Chilled Water System 2. Fire which could make RCIC inop.
SITE AREA EMERGENCY	1. Fire which compromises Function of a safety system which is required to mitigate the consequences of an accident <u>OR</u> is required to achieve or maintain safe shutdown <u>AND</u> for which there is no safety grade backup. i.e.: - HPCI AND ADS - All low pressure ECCS - Loss of Suppression Pool Cooling
GENERAL EMERGENCY	N/A

Appendix ERP-101-6
RADIOACTIVE EFFLUENT RELEASE

UNUSUAL EVENT	1. Gaseous release in excess of Offsite Dose Calculation Manual as evidenced by: North Stack or South Stack Rad monitor continuously in HiHi Alarm for **>60 minutes** <u>OR</u> known unmonitored release continuously in progress for >60 minutes **<u>AND</u>** Calculated maximum offsite dose rates exceeds **0.114 mRem/hr TPARD <u>OR</u> 0.342 mRem/hr child thyroid CDE** based on a 60 minute average. 2. Liquid release exceeds Offsite Dose Calculation Manual 3.2.2 or 3.2.3.
ALERT	*** Enter T-104 and execute concurrently *** 1. Calculated offsite dose rate exceeds 0.57 mR/hr TPARD (Total Protective Action Recommendation Dose) using 15 minute average release data 2. 1.70 mR/hr child thyroid CDE (Committed Dose Equivalent) using 15 min average release data.
SITE AREA EMERGENCY	*** Enter T-104 and execute concurrently *** 1. North Stack Wide Range Accident Monitor reading exceeds 3.4E+06 uCi/sec for 2 minutes per recorder RR26-076 on MCR Panel 00C624 or RM-11 color console), excluding system noise. 2. Calculated offsite dose exceeds 100 mR TPARD (Total Protective Action Recommendation Dose 3. Measured offsite dose rate exceeds 25 mR/hr TEDE (Total Effective Dose Equivalent) 4. Calculated offsite dose exceeds 500 mR child thyroid CDE (Committed Dose Equivalent) <u>OR</u> measured air concentration of 6.5×10^{-8} uCi/cc iodine 5. Calculated or measured skin dose exceeds 5R.
GENERAL EMERGENCY	*** Enter T-104 and execute concurrently *** 1. Measured offsite whole body dose rate exceeds 250 mrem/hr TEDE (Total Effective Dose Equivalent) 2. Measured air concentration of 6.5×10^{-7} uci/cc iodine 3. Calculated or measured offsite dose of 1000 mrem TPARD (Total Protective Action Recommendation Dose) 4. Calculated or measured offsite dose exceeds 5000 mR child thyroid CDE (Committed Dose Equivalent) *** PAR *** Evacuate 5 mile full circle. Evacuate affected sector(s) and 2 adjacent sectors for 5-10 miles

Appendix ERP-101-7
EVACUATION OF CONTROL ROOM

UNUSUAL EVENT	N/A
ALERT	1. Evacuation of Control Room anticipated or required with control established at remote shutdown panel.
SITE AREA EMERGENCY	1. Evacuation of Control Room <u>AND</u> control of shutdown systems <u>not</u> established from remote shutdown panel in 15 minutes
ENERAL EMERGENCY	N/A

Appendix ERP-101-8
DAMAGE TO FUEL

UNUSUAL EVENT	1. Steam Jet Air Ejector Discharge radiation monitor exceeds 2.1E+04 mR/hr. 2. Steam Jet Air Ejector Discharge radiation monitor has an unexpected increase of 4000 mR/hr over 30 minutes. 3. I-131 dose equivalent in reactor coolant exceeds 4 uCi/g or exceeds 0.2 uCi/g for more than 48 hours during one continuous time interval.	
ALERT	1. Steam Jet Air Ejector Discharge Radiation Monitor exceeds 2.1E+05 mR/hr. 2. I-131 dose equivalent in reactor coolant exceeds 300 uCi/g from sample <u>AND</u> main steam line high-high radiation alarm. 3. Spent fuel damage resulting in a refueling floor area ventilation exhaust monitor alarm. 4. Containment Post LOCA Radiation monitors greater than 1E+02 R/hr.	
SITE AREA EMERGENCY	1. Major damage to spent fuel: a. Observation of major damage to spent fuel <u>OR</u> b. Water loss below fuel level in spent fuel pool. 2. Containment Post LOCA Radiation monitors greater than 1E+03 R/hr.	
GENERAL EMERGENCY	D/W Rad >1E+04 R/hr with containment intact.	***** PAR ***** **Evacuate 2 mile radius, evacuate affected sector(s) and 2 adjacent sectors for 2-5 miles.**
	D/W Rad >5E+04 R/hr with containment intact.	***** PAR ***** **Evacuate 5 mile radius, evacuate affected sector(s) and 2 adjacent sectors for 5-10 miles**

Appendix ERP-101-9
INSTRUMENT OR COMMUNICATION FAILURE

UNUSUAL EVENT	1. Loss of all Main Control Room communications. 2. Significant loss of assessment capability in Main Control Room. a. Indicated by loss of PMS for a greater than 24 hours.
ALERT	1. Loss of all annunciators.
SITE AREA EMERGENCY	1. All annunciators lost and plant transient initiated or in progress.
ENERAL EMERGENCY	N/A

Appendix ERP-101-10
SCRAM FAILURE

UNUSUAL EVENT	N/A	
ALERT	1. Failure of the Reactor Protection System to automatically initiate and complete a scram as indicated by APRM's greater than 4%, one minute after scram signal has occurred <u>OR</u> should have occurred.	
SITE AREA EMERGENCY	1. Transient requiring manual or automatic standby liquid control system injection. (Due to high Suppression Pool temperature in T-101 or RRCS Setpoints exceeded).	
ENERAL EMERGENCY	1. Transient requiring manual or automatic standby liquid control system injection (Due to high S/P temp or RRCS setpoints exceeded). <u>AND</u> The reactor is not made or expected to be made subcritical <u>45</u> minutes after SLC injection attempted.	***** PAR ***** **Evacuate 2 mile radius, evacuate affected sector(s) and 2 adjacent sectors for 2-5 miles.**

Appendix ERP-101-11
BOUNDARY DEGRADATION/LOCA

UNUSUAL EVENT	1. Failure of main steam relief valve <u>OR</u> ADS valve to close following reduction of applicable pressure. (Ref 6.5.3) 2. Reactor coolant leak rate exceeds 30 gpm total leakage. a. Indicated by surveillance test report.
ALERT	1. Scram with leak. Indicated by: a. Reactor level less than -129" <u>OR</u> unknown <u>AND</u> b. Containment pressure greater than 1.68 psig. 2. Containment pressure greater than 10 psig. 3. D/W floor drain sump discharge >50gpm for 1 hour. 4. High airborne contamination in reactor enclosure indicated by RE exhaust RAD Monitor A/B or C/D Hi-Hi. 5. 1000 fold increase in general area radiation levels as reported by Health Physics. 6. 6000 DAC airborne activity excluding isotopes with half lives less than 2 hours as reported by Health Physics.
SITE AREA EMERGENCY	1. Scram with LOCA indicated by: a. Reactor level less than -129" <u>OR</u> unknown <u>AND</u> b. Containment pressure greater than 10 psig and increasing. 2. Main steam line break outside containment without isolation indicated by: a. High Main Steam Line Flow (108.7 psig) <u>OR</u> b. High Steam Tunnel Temp (165 deg F) <u>OR</u> c. Main Steam Line Low Pressure (756 psig)
GENERAL EMERGENCY	1. Scram with LOCA <u>AND</u> ECCS unable to maintain reactor water level as indicated by: a. Failure to bring Reactor level above -161" after 3 minutes <u>AND</u> b. Containment pressure greater than 20 psig. 2. Scram with LOCA & D/W failure. Indicated by: Reactor level less than -129" <u>OR</u> unknown <u>AND</u> Unexpected drop in D/W pressure or other evidence of D/W failure. ***** PAR *** *** PAR *** *** PAR ***** Evacuate 2 mile radius, evacuate affected sector(s) and

Appendix ERP-101-12
UNUSUAL SHUTDOWN

UNUSUAL EVENT	1. Shutdown initiated as required by any of the following Technical Specification limiting conditions for operations: LCO 3.4.3.2 - Failure to meet minimum reactor coolant system leakage limits. LCO 3.4.6.1 - Exceeding reactor coolant system heatup or cooldown limits. LCO 3.5.3 - Failure to meet suppression chamber operability requirements. LCO 3.6.1.1 - Failure to maintain primary containment integrity. LCO 3.8.1.1 OR 3.8.3.1 - Failure to meet minimum A.C. electrical power requirements while operating. 2. Scram and automatic ECCS initiation with discharge to the vessel as a result of a valid signal. 3. Exceeding any Technical Specification safety limits.
ALERT	N/A
SITE AREA EMERGENCY	N/A
ENERAL EMERGENCY	N/A

Appendix ERP-101-13
LOSS OF HOT OR COLD SHUTDOWN CAPABILITY

UNUSUAL EVENT	N/A
ALERT	1. Complete loss of ability to establish <u>AND</u> maintain plant in a Cold Shutdown condition. Symptomized by: a. Inability to establish Reactor Coolant Temperature of less than 200 degrees F in a timely manner. <u>OR</u> b. Loss of all means of Primary and Alternate Decay Heat Removal when shutdown, such that Reactor Coolant Temperature cannot be maintained below 200 degrees F.
SITE AREA EMERGENCY	1. Actual inability to reduce Reactor Coolant System temperature while the plant is Shutdown. Indicated by: a. Inability to establish reactor coolant temperature less than 200 degrees F in a timely manner. <u>AND</u> b. Suppression Pool Temperature greater than 120 degrees F and rising.
NERAL EMERGENCY	1. Inability to reduce Reactor Coolant System Temperature with potential for release of large amounts of radioactivity. Indicated by: a. Inability to maintain Reactor level greater TAF <u>OR</u> substantial Fuel damage has occurred <u>AND</u> b. Inability to maintain Suppression Pool Temperature below upper limit of Heat Capacity Curves (SP/T-1 and SP/L-1) on T-102 procedure. ***** PAR ***** **Evacuate 2 mile radius, evacuate affected sector(s) and 2 adjacent sectors for 2-5 miles.**

Appendix ERP-101-14
SECURITY

UNUSUAL EVENT	1. Security threat OR attempted entry OR attempted sabotage as illustrated by: A - Credible Bomb Threat B - Credible Sabotage Threat C - Actual Intrusion D - Suspected Bomb or Sabotage Discovered E - Guard Strike F - Onsite Hostage Situation
ALERT	1. Ongoing security comprise.
SITE AREA EMERGENCY	1. Imminent loss of physical control of the plant.
NERAL EMERGENCY	1. Loss of physical control of the facility. ***** PAR *** Precautionary evacuation of 2 mile radius.**

Appendix ERP-101-15
TERMS AND DEFINITIONS

EMERGENCY ACTION LEVEL (EAL)	Plant parameters or other condition which if met or exceeded the emergency classification level and requires a declaration of emergency.
OPERABLE	System, subsystem, train, component, or device, and all auxiliaries required for their operation, is capable of performing its specified function in the intended manner.
PROTECTIVE ACTION RECOMMENDATIONS (PAR)	Recommendation made to the state action to be taken to avoid or reduce projected dose to the public.
PROJECTED DOSE	An estimate of radiation dose which affected individuals could potentially receive if protective actions are not taken.
TPARD	Total Protective Action Recommendation Dose. (TPARD = External Dose & Internal Dose & Dose Due to 4-Day Shine)
CDE	Committed Dose Equivalent. (CDE = internal Organ Dose from Ingestion)
CEDE	Committed Effective Dose Equivalent. (CEDE = Internal Whole Body Dose from Ingestion)
TEDE	Total Effective Dose Equivalent. (TEDE = Deep Dose Equivalent & CEDE Dose)
PROTECTIVE ACTION GUIDE (PAG)	Action guidelines based on projections for the total integrated dose a member of the public would receive for the duration of the emergency.
SABOTAGE	An act conducted by a person or persons with the intent of damaging or impairing the operation of the plant.
SECURITY COMPROMISE	A security threat as illustrated by attempted entry or sabotage with the intent to gain physical control of the plant.

UNUSUAL EVENT	Events in progress or have occurred, that indicate a potential degradation of the level of safety of the pl No releases of radioactive material requiring off-site response or monitoring are expected unless further degradation of safety systems occurs.
ALERT	Events in progress or have occurred that involve actual potential substantial degradation of the level of safe the plant. Any releases of radioactive material are e to be limited to small fractions of the Environmental Protective Agency (EPA) Protective Action Guidelines (exposure levels.
SITE AREA EMERGENCY	Events in progress or which have occurred that involve or likely major failures of plant functions needed for protection of the public. Any releases of radioactive material are not expected to exceed EPA PAG exposure l except near site boundary.
GENERAL EMERGENCY	Events in progress or which have occurred that involve or imminent substantial core degradation or melting wi potential for loss of containment integrity. Releases radioactive material can be reasonably expected to exc PAG exposure levels off-site for more than the immedia

4-22-96

PECO ENERGY COMPANY
LIMERICK GENERATING STATION

GP-6.2 SHUTDOWN OPERATIONS - SHUTDOWN CONDITION TECH. SPEC. ACTIONS

1.0 PURPOSE

To provide necessary operating steps to be taken as directed by selected Technical Specification action statements. Following actions are covered in this procedure:

1.1 SECTION 3.1 - Establishing Alternate Decay Heat Removal

1.2 SECTION 3.2 - Establishing Alternate Reactor Coolant Circulation (Ref. 4.13)

1.3 SECTION 3.3 - Suspending Operations With A Potential for Draining the Vessel

1.4 SECTION 3.4 - Establishing Secondary Containment Integrity

2.0 PREREQUISITES

2.1 Vessel not defueled (See Tech. Spec. definition of core alterations)

3.0 PROCEDURE

> **CAUTION**
>
> Reactor Water Level must be greater than 60 inches on LI-42-*R605 OR greater than 78 inches on LR-42-*R608 for sufficient natural circulation in the event of degraded OR loss of forced circulation.

3.1 ESTABLISHING ALTERNATE DECAY HEAT REMOVAL

3.1.1 Select
AND verify availability of an appropriate alternate decay heat removal system for each "less than fully operable RHR Shutdown Cooling Loop" using Decay Heat Removal Systems Capability Table based on time after shutdown. (Columns 1 & 3)

3.1.2 IF no systems from this list can adequately handle the decay heat load based on time after shutdown estimate,
THEN select
AND verify availability of an appropriate alternate decay heat removal system for each "less than fully operable RHR Shutdown Cooling Loop", using Decay Heat Removal Systems Capability Table, based on calculation of decay heat provided by Reactor Engineering. (Columns 2 & 3)

NOTE: Time estimates provided below are based on a core that has seen full power for 24 months. An alternate decay heat removal system can be selected from table below based on this decay heat load estimate. (Columns 2 & 3). For actual "Time Available After Shutdown from full power" request Reactor Engineering estimation of current decay heat level.

DECAY HEAT REMOVAL SYSTEMS CAPABILITY TABLE

	System	(1) Time Available After Shutdown from full power	(2) Max Heat Removal Rate (MWth)	(3) Step for Demonstration of Decay Heat Removal Capability
OPCON 4: (Reference Temp 180 Deg. F	2 RHR HTX each with 1 RHR Pump	45 Min	58.6	3.1.5 OR 3.1.6
	1 RHR HTX 1 RHR Pump	3 hrs	29.3	3.1.5 OR 3.1.6
	2 RWCU Pumps/ 1 NRHTX	58 days	2.9	3.1.6
OPCON 5: (Reference Temp. 125 Deg. F)	2 RHR HTX each with 1 RHR Pump	5 hrs	24.3	3.1.5 OR 3.1.6
	1 RHR HTX 1 RHR Pump	42 hrs	12.3	3.1.5 OR 3.1.6
	2 RWCU Pumps 1 NRHTX	193 days	1.35	3.1.6
Flooded Up:	RHR Backup To Fuel Pool Cooling	60 hrs	10.7	3.1.7
	3 Fuel Pool Cooling Htx & Pumps	8 days	7.0	3.1.7
	2 Fuel Pool Cooling Htx & Pumps	20 days	4.7	3.1.7
	2 RWCU Pumps 1 NRHTX	193 days	1.35	3.1.6

3.1.3 **WHEN** an alternate decay heat removal system has been verified as available **THEN** record in logbook **AND** notify shift supervision.

3.1.4 Verify that system selected for alternate decay heat removal is available at least once per 24 hours.

3.1.5 For Alternate Shutdown Cooling using RHR, SRV's & Suppression Pool Cooling (OPCON 4 ONLY).

NOTE: To verify availability of this method for Tech. Specs., only the following three steps must be performed:

a. Verify three SRV's will operate by ensuring RT-4-041-470-* is in surveillance.

b. Verify at least one loop of RHR is capable of being placed in Suppression Pool Cooling per S51.8.A.

NOTE: An operable ECCS system may satisfy requirement of step 3.1.5.c.

c. Verify one loop of LPCI is lined up for operation per S51.1.A
<u>OR</u> verify one loop of Core Spray is lined up for operation per S52.1.A.

NOTE: To <u>operate</u> this alternate shutdown cooling method:

d. Perform S41.7.B

3.1.6 For RWCU System:

NOTE: RWCU may be verified as an available decay heat removal method by calculation or demonstration. RT-3-044-310-* may be performed to verify availability by calculation. A method of core circulation must also be verified as available (i.e. RHR SDC or RPV Recirc Pump).

NOTE: For each plant shutdown period, steps a through c are only required for the initial decay heat removal demonstration.

a. Establish Reactor coolant circulation <u>only</u> by placing one RHR Shutdown Cooling loop in service per S51.8.B with the heat exchanger in full flow bypass
<u>OR</u> one Recirc. Pump in service per S43.1.A.

b. Place RWCU in service per S44.7.B, Using Reactor Water Cleanup as an Alternate Method of Decay Heat Removal.

c. Perform RT-6-044-310-*
<u>OR</u> RT-3-044-310-* to verify RWCU can handle the decay heat load.

NOTE: The following step requires at least the same number of RWCU pumps
<u>AND</u> non-regenerative heat exchangers available for service as utilized during the performance of step 3.1.6.c.

d. For subsequent demonstrations, verify RWCU system is in service
<u>AND</u> is capable of being placed in the decay heat removal mode per S44.7.B.
<u>AND</u> is capable of being supplied with cooling water from the same source as used in step 3.1.6.c.

3.1.7 For Fuel Pool Cooling System (With Reactor Cavity Flooded
<u>AND</u> Spent Fuel Pool Gates Removed):

NOTE: For each plant shutdown period, steps a through c are only required for the initial decay heat remove demonstration.

a. Establish Reactor coolant circulation by either:

1. Placing one RHR shutdown cooling loop in service per S51.8.B with the heat exchanger in full flow bypass
<u>OR</u>

2. One Recirc Pump in service per S43.1.A.

3. Natural circulation per S53.7.A (Ref. 4.13)

b. <u>IF</u> <u>not</u> already done
<u>THEN</u> place Fuel Pool Cooling in service per S53.1.A,
<u>OR</u> using RHR as a back-up per S51.8.G
<u>OR</u> S51.8.J.

c. Ensure RT-1-053-310-* has been performed
<u>AND</u> Shift Update Notice is issued for Fuel Pool Cooling decay heat removal.

3.2 ESTABLISHING ALTERNATE REACTOR COOLANT CIRCULATION

NOTE: ECCS Tech. Spec. 3.5.2 must be complied with while removing LPCI loops from dedicated LPCI service.

3.2.1 Establish alternate reactor coolant circulation per one of the following:

a. At least one Recirc Pump per S43.1.A.

b. At least one RHR Shutdown Coolant Pump per S51.8.B,
OR S51.8.H.

c. Natural circulation per S53.7.A (Ref. 4.13)

3.2.2 WHEN no RHR Shutdown Cooling Pump is in operation as required by Tech. Specs.,
THEN perform ST-6-107-641-* to monitor Reactor coolant pressure
AND temperature.

3.3 SUSPENDING OPERATIONS WITH POTENTIAL FOR DRAINING THE VESSEL

3.3.1 Post a sign at Reactor console *0C603 to remind operators that operations with potential for draining the Vessel are suspended.

3.3.2 Suspend following work activities:

a. CRD maintenance including drive removal/replacement,

NOTE: Testing includes troubleshooting, logic testing, routine/surveillance tests
OR any other tests which could cause valve/system operations.

b. Work/testing/operations which have potential to remove Vessel inventory other than normal methods of makeup/letdown, on any line
OR system which connects to a Reactor Vessel penetration below Vessel level required to be maintained for current plant conditions.

3.3.3 Exceptions to activities listed above are found in PORC Position 23.

3.4 ESTABLISHING SECONDARY CONTAINMENT INTEGRITY

NOTE: IF in OPCON 4 with Reactor Cavity Shield Plugs installed AND Tech Spec action statements require establishing Secondary Containment Integrity, AND the Reactor Enclosure Secondary Containment Zone is extended to include the Common Refuel Floor, THEN both the Reactor Enclosure AND the Common Refuel Floor Secondary Containment Integrity needs to be established to satisfy Tech Spec actions. Otherwise, only Reactor Enclosure Secondary Containment Integrity needs to be established to satisfy Tech Spec actions.

Steps 3.4.1 through 3.4.11 establish Reactor Enclosure Secondary Containment Integrity.

3.4.1 Ensure following surveillance tests are still in surveillance:

ST-2-072-106-*
ST-2-072-107-*
ST-6-076-310-*
ST-4-076-321-0
ST-4-076-322-0
ST-4-076-321-*
ST-4-076-322-*
ST-2-026-434-*
ST-2-026-435-*
ST-2-026-436-*
ST-2-026-437-*
ST-2-042-453-*
ST-2-042-454-*
ST-2-042-455-*
ST-2-042-456-*
ST-2-042-457-*
ST-2-042-458-*
ST-2-042-459-*
ST-2-042-460-*
ST-2-076-400-*
ST-2-076-401-*
ST-4-076-801-0
ST-4-076-802-0
ST-4-076-806-*
ST-4-076-807-*

3.4.2 Verify ST-6-076-200-* is in surveillance.

3.4.3 Verify following monthly surveillance tests are still in surveillance:

ST-2-026-618-*
ST-2-026-619-*
ST-2-026-620-*
ST-2-026-621-*
ST-2-042-653-*
ST-2-042-654-*
ST-2-042-655-*
ST-2-042-656-*
ST-2-042-657-*
ST-2-042-658-*
ST-2-042-659-*
ST-2-042-660-*
ST-2-076-600-*
ST-2-076-601-*
ST-6-076-250-*

3.4.4 Review outstanding Clearances/TCA's to determine whether there is any impact on Reactor Enclosure Secondary Containment Integrity
AND correct any problems.

3.4.5 Perform ST-6-076-360-*, Reactor Enclosure Integrity Check.

3.4.6 Maintain Reactor Enclosure differential pressure greater than 0.25 inches water negative by placing Reactor Enclosure HVAC in service per S76.1.B.

3.4.7 IF Reactor Enclosure HVAC is unavailable,
THEN initiate SGTS per S76.8.B.

NOTE: The following step is performed prior to AND during the time Secondary Containment Integrity is needed per Tech. Specs. action statement.

3.4.8 Change ST-6-107-591-* with a temporary procedure change per A-3, to include the additional daily
AND shiftly channel checks for Secondary Containment Integrity as prescribed in Appendix 1.

UNIT 1 ONLY

3.4.9 Verify SGD-76-206-1, Reactor Enclosure to SGTS, is locked open.

UNIT 2 ONLY

3.4.10 Verify SGD-76-506-2, Reactor Enclosure to SGTS, is locked open.

3.4.11 IF Refuel Floor Secondary Containment is not established, THEN verify SGD-76-206-3 Refuel Floor to SGTS is closed.

NOTE 1: WHEN in OPCON 5 with Reactor Well Cavity filled OR in OPCON 4 without Reactor Cavity Shield Plugs installed, THEN Reactor Enclosure AND Refuel Floor Secondary Containment Integrity will need to be established to satisfy any applicable required Tech. Spec. actions.

NOTE 2: IF Secondary Containment Integrity must be established due to loss of all ECCS required per Tech. Spec. 3.5.2 AND the Reactor Well Cavity is filled, removing the Fuel Pool Gates reduces the ECCS requirements to zero. This may eliminate the need to establish Secondary Containment Integrity.

Steps 3.4.12 through 3.4.20 establish Refuel Floor Secondary Containment Integrity.

3.4.12 Ensure following 18 month surveillance tests are still in surveillance:

ST-2-072-106-0
ST-2-072-107-0
ST-6-076-310-0
ST-2-026-430-*
ST-2-026-431-*
ST-2-026-432-*
ST-2-026-433-*
ST-2-076-402-0
ST-2-076-403-0

3.4.13 Ensure following quarterly surveillance test is still in surveillance:

ST-6-076-201-0

3.4.14 Ensure following monthly surveillance tests are still in surveillance:

ST-2-026-622-*
ST-2-026-623-*
ST-2-026-624-*
ST-2-026-625-*
ST-2-076-602-0
ST-2-076-603-0

3.4.15 Ensure following monthly surveillance test still in surveillance:

ST-6-076-250-1
OR ST-6-076-250-2

3.4.16 Verify SGD-76-206-3, Refuel Floor to SGTS, is locked open.

3.4.17 Review outstanding Clearances/TCA's to determine whether there is any impact on Refuel Floor Secondary Containment Integrity
AND correct any problems.

3.4.18 Perform ST-6-076-360-0, Refuel Floor Integrity Check.

3.4.19 Maintain Refuel Floor differential pressure greater than 0.25 inches water negative by placing Refuel Floor HVAC in service per S76.1.A.

3.4.20 IF Refuel Floor HVAC is unavailable, THEN initiate SGTS per S76.8.B.

4.0 REFERENCES

4.1 BLP-22707, RHR Shutdown Cooling

4.2 PORC Position 23, Operations with a Potential for Draining the Reactor Vessel

4.3 LGS Technical Specifications

4.4 UFSAR 9.1.3.1.d, Fuel Pool Cooling

4.5 UFSAR Fig. 5.4-14, RHR Process Diagram

4.6 UFSAR Fig. 5.4-17, RWCU Process Diagram

4.7 NEDO-24810B, Volume 1, Fig. 2-4, Decay Heat

4.8 GE SIL #401, BWR Shutdown Cooling - AID 68

4.9 IE Bulletin No. 80-12, Decay Heat Removal System Operability

4.10 INPO SOER 82-2, Inadvertent Reactor Pressure Vessel Pressurization

4.11 Safety Evaluation for Mod 5107 (File: RES 5-3)

4.12 IE Circular 81-11

4.13 GE-NE-A0005873-12, LGS Alternate Shutdown Cooling with Natural Circulation

APPENDIX 1 - DAILY SURVEILLANCE ADDITIONS

DAILY SURVEILLANCE LOG - (DAY-SHIFT) - AUX. EQUIPMENT ROOM

OPCON ____

Date __/__/__

PARAMETER	*0C609		*0C611	
	RDG.	INIT.	RDG.	INIT.
D/W Press PIS-42 (PSIG)				
	C71-*N650A		C71-*N650D	
	C71-*N650C		C71-*N650B	
. Vessel Wtr Level LIS-42 (IN)				
	B21*N681A		B21*N681D	
	B21*N681C		B21*N681B	

PARAMETER			*0C633		*0C606			
			RDG.	INIT.	RDG.	INIT.		
RX Enxl Vent Rad RISH-26 (MR/HR)								
	"B" Vent		*K609B		*K609A		"A" Vent	
	"D" Vent		*K609D		*K609C		"C" Vent	

APPENDIX 1 - DAILY SURVEILLANCE ADDITIONS

DAILY SURVEILLANCE LOG - (NIGHT-SHIFT) - AUX. EQUIPMENT ROOM

OPCON ____

Date __/__/__

PARAMETER	*0C609		*0C611	
	RDG.	INIT.	RDG.	INIT.
D/W Press PIS-42 (PSIG)				
	C71-*N650A		C71-*N650D	
	C71-*N650C		C71-*N650B	
RX Vessel Wtr Level LIS-42 (IN)				
	B21*N681A		B21*N681D	
	B21*N681C		B21*N681B	

PARAMETER			*0C633		*0C606			
			RDG.	INIT.	RDG.	INIT.		
RX Enxl Vent Rad RISH-26 (MR/HR)								
	"B" Vent		*K609B		*K609A		"A" Vent	
	"D" Vent		*K609D		*K609C		"C" Vent	

LEVEL II
REFERENCE USE

PECO ENERGY COMPANY
LIMERICK GENERATING STATION

11-20-96

S53.7.A ALIGNMENT OF FUEL POOL COOLING SYSTEM FOR NATURAL RECIRCULATION AND ESTABLISHING/RESTORING NATURAL RECIRCULATION

1.0 PURPOSE

1.1 To provide lineup and operation of Fuel Pool Cooling and Cleanup (FPCC) for natural circulation mode of core circulation.

1.2 To provide direction on establishing natural circulation and restoring from natural circulation.

2.0 PREREQUISITES

2.1 Unit in OPCON 5.

2.2 Fuel Pool Gates to Reactor Cavity (*A(B)-S226) are removed.

2.3 Shutdown Cooling in service per S51.8.B, Shutdown Cooling/Reactor Coolant Circulation Operation Start-up And Shutdown.

2.4 Fuel Pool Cooling in service per S53.1.A, Start-up And Temperature Control Of Fuel Pool Cooling System.

2.5 Less than 80% of original core in vessel as determined by Reactor Engineering.

2.6 Fuel Pool Cooling capable of removing decay heat from Spent Fuel Pool and Reactor Cavity as determined by RT-1-053-310-*, Demonstration Of Fuel Pool Cooling Capability As An Alternate Decay Heat Removal Method.

3.0 PRECAUTIONS

3.1 IF capability to maintain Fuel Pool/Reactor Cavity temperature is lost
THEN ON-125, Loss Of Fuel Pool Cooling, should be entered.

3.2 During performance of this procedure, the Fuel Pool Cooling System will be aligned to receive water from the Spent Fuel Pool only
AND return water to the Reactor Cavity.

3.3 Installation of the Fuel Pool Gates to Reactor Cavity while aligned per this procedure will cause the Fuel Pool Cooling system to trip.

3.4 IF water temperature exceeds 135 °F

THEN Fuel Pool Seal life will be reduced.

3.5 IF water temperature exceeds 140 °F in Fuel Pool Demineralizers
THEN short run times
AND silica leakage may occur due to chemistry reasons.

3.6 WHEN Fuel Pool is connected to Reactor Cavity
THEN temperature must be maintained above 70 °F per Tech Spec temperature limitations.

4.0 PROCEDURE

4.1 FUEL POOL COOLING (FPCC) ALIGNMENT

4.1.1 **ISOLATE** flow to Skimmer Surge Tanks (SST) from Reactor Cavity by requesting Nuclear Maintenance to cover SST Reactor Cavity openings.

4.1.2 **ENSURE** 53-*029, "FPC Sys Isol Vlv To/From the RWST," closed.

4.1.3 UNIT 1 ONLY

ENSURE 53-1053, "Fuel Cask Strg Pit Fill/Drain Vlv," closed.

4.1.4 **ENSURE** 53-*027, "FPC To Rx Well And Fuel Cask Strg Pit Isol Vlv," open.

4.1.5 **ENSURE** 53-*057, "Rx Well Fill/Drain Vlv," open.

> **NOTE**
>
> Step 4.1.6
> AND 4.1.7 require Nuclear Maintenance to remove diamond plate to access valves.

4.1.6 **CLOSE** 53-*023A, "FPC Wtr Ret Vlv To Fuel Pool."

4.1.7 **CLOSE** 53-*023B, "FPC Wtr Ret Vlv To Fuel Pool."

4.1.8 **PLACE** 3 FPC Pumps in service per S53.8.A, Start-up Or Shutdown Of Additional Fuel Pool Cooling (FPC) Water Pumps.

4.1.9 **PLACE** 3 FPC Heat Exchangers per S53.8.A, Start-up Or Shutdown Of Additional Fuel Pool Cooling (FPC) Water Pumps
AND S10.8.A, Fuel Pool Service Water Booster Pump Start-up, Normal Operation, And Shutdown.

4.2 ESTABLISHING NATURAL CIRCULATION

4.2.1 IF Reactor Recirc Pump in service
THEN **SECURE** Reactor Recirc Pump per S43.2.A, Shutdown Of A Recirculation Pump.

4.2.2 IF Reactor Cavity level is being maintained per S53.4.D, Reactor Cavity Level Control With RWCU Unavailable During Refuel Operations
THEN consider throttling/closing 53-*048, "Fuel Pool Sys Disch Vlv To Radwaste," per S53.4.D, Reactor Cavity Level Control With RWCU Unavailable During Refuel Operations.

NOTE
Reactor Coolant temperature will rise for approximately 36 hours following completion of step 4.2.3, 4.2.5.

4.2.3 **SECURE** Shutdown Cooling per S51.8.B, Shutdown Cooling/Reactor Coolant Circulation Operation Start-up And Shutdown.

CAUTION
Securing CRD per S46.2.A, Shutdown Of Control Rod Drive Hydraulic System, while Reactor Cavity level control per S53.4.D, Reactor Cavity Level Control With RWCU Unavailable During Refuel Operations, may cause FPC System trip due to low Skimmer Surge Tank Level.

4.2.4 **NOTIFY** Shift Supervision (SSVN) to monitor Reactor Coolant temperature per ST-6-107-641-*, Rx Vessel Temperature And Pressure Monitoring With No RHR Shutdown Cooling Pump In Operation.

4.2.5 IF 2 Fuel Pool Cooling Pumps
OR 1 Heat Exchanger is out of service
THEN establish alternate core circulation method per GP-6.2, Shutdown Operations - Shutdown Condition Tech Spec Action.

4.2.6 IF Refuel Unit service water is unavailable,
AND service water on the operating unit is available,
THEN perform S10.7.A, "Abnormal Service Water System Operation" Section 4.6 to supply SW for Natural Circulation from the operating unit.

4.2.7 IF Fuel Pool Cooling is lost
THEN **ENTER** ON-125, Loss Of Fuel Pool Cooling.

4.3 RESTORATION

4.3.1 **ESTABLISH** forced Reactor Coolant Circulation per GP-6.2.

> **NOTE**
>
> Steps 4.3.2
> AND 4.3.3 require Nuclear Maintenance to remove diamond plate to access valves.

4.3.2 **OPEN** 53-*023A, "FPC Wtr Ret Vlv To Fuel Pool."

4.3.3 **OPEN** 53-*023B, "FPC Wtr Ret Vlv to Fuel Pool."

4.3.4 **ESTABLISH** flow to Skimmer Surge Tanks (SST) from Reactor Cavity by requesting Nuclear Maintenance to remove covers from SST Reactor Cavity openings.

5.0 REFERENCES

5.1 GE-NE-A0005873-12, LGS Alternate Shutdown Cooling with Natural Circulation

5.2 SP-132, Reactor Coolant Natural Circulation

5.3 M-53, P&ID - Fuel Pool Cooling And Cleanup

6.0 TECHNICAL SPECIFICATIONS

6.1 3.9.11

7.0 INTERFACING PROCEDURES

7.1 GP-6.2, Shutdown Operations - Shutdown Condition Tech Spec Actions

7.2 ST-6-107-641-*, Rx Vessel Temperature And Pressure Monitoring With No RHR Shutdown Cooling Pump In Operation

7.3 ST-6-107-591-*, Daily Surveillance Log/OPCON 4,5

7.4 ON-125, Loss Of Fuel Pool Cooling

7.5 RT-1-053-310-*, Demonstration Of Fuel Pool Cooling Capability As An Alternate Decay Heat Removal Method

7.6 S53.4.D, Reactor Cavity Level Control With RWCU Unavailable During Refuel Operations

7.7 S46.2.A, Shutdown Of Control Rod Drive Hydraulic System

7.8 S43.2.A, Shutdown Of A Recirculation Pump

7.9 S51.8.B, Shutdown Cooling/Reactor Coolant Circulation Operation Start-up And Shutdown

7.10 S53.8.A, Start-up Or Shutdown Of Additional Fuel Pool Cooling (FPC) Water Pumps

7.11 S10.8.A, Fuel Pool Service Water Booster Pump Start-up, Normal Operation, And Shutdown

7.12 S53.1.A, Start-up And Temperature Control Of Fuel Pool Cooling System

7.13 S10.7.A, Abnormal Service Water System Operation

3/4.9.11 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

HIGH WATER LEVEL

LIMITING CONDITION FOR OPERATION

3.9.11.1 At least one shutdown cooling mode loop of the residual heat removal (RHR) system shall be OPERABLE and in operation* with at least:

a. One OPERABLE RHR pump, and

b. One OPERABLE RHR heat exchanger.

APPLICABILITY: OPERATIONAL CONDITION 5, when irradiated fuel is in the reactor vessel and the water level is greater than or equal to 22 feet above the top of the reactor pressure vessel flange.

ACTION:

a. With no RHR shutdown cooling mode loop OPERABLE, within 1 hour and at least once per 24 hours thereafter, verify the availabilty of at least one alternate method capable of decay heat removal. Otherwise, suspend all operations involving an increase in the reactor decay heat load and establish SECONDARY CONTAINMENT INTEGRITY within 4 hours.

b. With no RHR shutdown cooling mode loop in operation, within 1 hour establish reactor coolant circulation by an alternate method and monitor reactor coolant temperature at least once per hour.

SURVEILLANCE REQUIREMENTS

4.9.11.1 At least one shutdown cooling mode loop of the residual heat removal system or alternate method shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

---

*The shutdown cooling pump may be removed from operation for up to 2 hours per 8-hour period.

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LOW WATER LEVEL

LIMITING CONDITION FOR OPERATION

3.9.11.2 Two shutdown cooling mode loop of the residual heat removal (RHR) system shall be OPERABLE and at least one loop shall be in operation,* with each loop consisting of at least:

a. One OPERABLE RHR pump, and

b. One OPERABLE RHR heat exchanger.

APPLICABILITY: OPERATIONAL CONDITION 5, when irradiated fuel is in the reactor vessel and the water level is less than 22 feet above the top of the reactor pressure vessel flange.

ACTION:

a. With less than the above required shutdown cooling mode loops of the RHR system OPERABLE, within 1 hour and at least once per 24 hours thereafter, verify the availability of at least one alternate method capable of decay heat removal for each inoperable RHR shutdown cooling mode loop.

b. With no RHR shutdown cooling mode loop in operation, within 1 hour establish reactor coolant circulation by an alternate method and monitor reactor coolant temperature at least once per hour.

SURVEILLANCE REQUIREMENTS

4.9.11.2 At least one shutdown cooling mode loop of the residual heat removal system or alternate method shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

---

*The shutdown cooling pump may be removed from operation for up to 2 hours per 8-hour period.

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3/4.9.11 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

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LIMITING CONDITION FOR OPERATION

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a. One OPERABLE RHR pump, and

b. One OPERABLE RHR heat exchanger.

APPLICABILITY: OPERATIONAL CONDITION 5, when irradiated fuel is in the reactor vessel and the water level is greater than or equal to 22 feet above the top of the reactor pressure vessel flange.

ACTION:

a. With no RHR shutdown cooling mode loop OPERABLE, within 1 hour and at least once per 24 hours thereafter, verify the availabilty of at least one alternate method capable of decay heat removal. Otherwise, suspend all operations involving an increase in the reactor decay heat load and establish SECONDARY CONTAINMENT INTEGRITY within 4 hours.

b. With no RHR shutdown cooling mode loop in operation, within 1 hour establish reactor coolant circulation by an alternate method and monitor reactor coolant temperature at least once per hour.

SURVEILLANCE REQUIREMENTS

4.9.11.1 At least one shutdown cooling mode loop of the residual heat removal system or alternate method shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

---

*The shutdown cooling pump may be removed from operation for up to 2 hours per 8-hour period.

LOW WATER LEVEL

LIMITING CONDITION FOR OPERATION

3.9.11.2 Two shutdown cooling mode loop of the residual heat removal (RHR) system shall be OPERABLE and at least one loop shall be in operation,* with each loop consisting of at least:

a. One OPERABLE RHR pump, and

b. One OPERABLE RHR heat exchanger.

APPLICABILITY: OPERATIONAL CONDITION 5, when irradiated fuel is in the reactor vessel and the water level is less than 22 feet above the top of the reactor pressure vessel flange.

ACTION:

a. With less than the above required shutdown cooling mode loops of the RHR system OPERABLE, within 1 hour and at least once per 24 hours thereafter, verify the availability of at least one alternate method capable of decay heat removal for each inoperable RHR shutdown cooling mode loop.

b. With no RHR shutdown cooling mode loop in operation, within 1 hour establish reactor coolant circulation by an alternate method and monitor reactor coolant temperature at least once per hour.

SURVEILLANCE REQUIREMENTS

4.9.11.2 At least one shutdown cooling mode loop of the residual heat removal system or alternate method shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

*The shutdown cooling pump may be removed from operation for up to 2 hours per 8-hour period.

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3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

PRIMARY CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 PRIMARY CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2*, and 3.

ACTION:

Without PRIMARY CONTAINMENT INTEGRITY, restore PRIMARY CONTAINMENT INTEGRITY within 1 hour or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.1 PRIMARY CONTAINMENT INTEGRITY shall be demonstrated:

a. After each closing of each penetration subject to Type B testing, except the primary containment air locks, if opened following Type A or B test, by leak rate testing the seals with gas at P_a, 44.0 psig, and verifying that when the measured leakage rate for these seals is added to the leakage rates determined pursuant to Surveillance Requirement 4.6.1.2d. for all other Type B and C penetrations, the combined leakage rate is less than or equal to 0.60 L_a.

b. At least once per 31 days by verifying that all primary containment penetrations** not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in position, except as provided in Table 3.6.3-1 of Specification 3.6.3.

c. By verifying the primary containment air lock is in compliance with the requirements of Specification 3.6.1.3.

d. By verifying the suppression chamber is in compliance with the requirements of Specification 3.6.2.1.

---

*See Special Test Exception 3.10.1

**Except valves, blind flanges, and deactivated automatic valves which are located inside the containment, and are locked, sealed, or otherwise secured in the closed position. These penetrations shall be verified closed during each COLD SHUTDOWN except such verification need not be performed when the primary containment has not been deinerted since the last verification or more often than once per 92 days.

PRIMARY CONTAINMENT LEAKAGE

LIMITING CONDITION FOR OPERATION

3.6.1.2 Primary containment leakage rates shall be limited to:

a. An overall integrated leakage rate of less than or equal to L_a, 0.500 percent by weight of the containment air per 24 hours at P_a, 44.0 psig.

b. A combined leakage rate of less than or equal to 0.60 L_a for all penetrations and all valves listed in Table 3.6.3-1, except for main steam line isolation valves* and valves which are hydrostatically tested per Table 3.6.3-1, subject to Type B and C tests when pressurized to P_a, 44.0 psig.

c. *Less than or equal to 100 scf per hour through any one main steam isolation valve not to exceed 200 scf per hour for all four main steam lines, when tested at P_t, 22.0 psig.

d. A combined leakage rate of less than or equal to 1 gpm times the total number of containment isolation valves in hydrostatically tested lines which penetrate the primary containment, when tested at 1.10 P_a, 48.4 psig.

APPLICABILITY: When PRIMARY CONTAINMENT INTEGRITY is required per Specification 3.6.1.1.

ACTION:

With:

a. The measured overall integrated primary containment leakage rate exceeding 0.75 L_a, or

b. The measured combined leakage rate for all penetrations and all valves listed in Table 3.6.3-1, except for main steam line isolation valves* and valves which are hydrostatically tested per Table 3.6.3-1, subject to Type B and C tests exceeding 0.60 L_a, or

c. The measured leakage rate exceeding 100 scf per hour through any one main steam isolation valve, or exceeding 200 scf per hour for all four main steam lines, or

d. The measured combined leakage rate for all containment isolation valves in hydrostatically tested lines which penetrate the primary containment exceeding 1 gpm times the total number of such valves,

restore:

a. The overall integrated leakage rate(s) to less than or equal to $0.75L_a$, and

---

*Exemption to Appendix J of 10 CFR Part 50.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

b. The combined leakage rate for all penetrations and all valves listed in Table 3.6.3-1, except for main steam line isolation valves* and valves which are hydrostatically tested per Table 3.6.3-1, subject to Type B and C tests to less than or equal to 0.60 L_a, and

c. The leakage rate to $\leq$11.5 scf per hour for any main steam isolation valve that exceeds 100 scf per hour, and restore the combined maximum pathway leakage to $\leq$200 scf per hour, and

d. The combined leakage rate for all containment isolation valves in hydrostatically tested lines which penetrate the primary containment to less than or equal to 1 gpm times the total number of such valves,

prior to increasing reactor coolant system temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The primary containment leakage rates shall be demonstrated at the following test schedule and shall be determined in conformance with the criteria specified in Appendix J of 10 CFR Part 50 using the methods and provisions of ANSI 45.4-1972 and BN-TOP-1 and verifying the result by the Mass Point Methodology described in ANSI N56.8-1981:

a. Three Type A Overall Integrated Containment Leakage Rate tests shall be conducted at 40 ± 10 month intervals during shutdown at P_a, 44.0 psig, during each 10-year service period. The third test of each set shall be conducted during the shutdown for the 10-year plant inservice inspection.

b. If any periodic Type A test fails to meet 0.75 L_a, the test schedule for subsequent Type A tests shall be reviewed and approved by the Commission. If two consecutive Type A tests fail to meet 0.75 L_a, a Type A test shall be performed at least every 18 months until two consecutive Type A tests meet 0.75 L_a, at which time the above test schedule may be resumed.

c. The accuracy of each Type A test shall be verified by a supplemental test which:

1. Confirms the accuracy of the test by verifying that the difference between the supplemental data and the Type A test data is within 0.25 L_a. The formula to be used is: $[L_o + L_{am} - 0.25\ L_a] \leq L_c \leq [L_o + L_{am} + 0.25\ L_a]$ where L_c = supplemental test result; L_o = superimposed leakage; L_{am} = measured Type A leakage.

2. Has duration sufficient to establish accurately the change in leakage rate between the Type A test and the supplemental test.

3. Requires the quantity of gas injected into the containment or bled from the containment during the supplemental test to be between 0.75 L_a and 1.25 L_a.

*Exemption to Appendix "J" to 10 CFR Part 50.

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d. Type B and C tests shall be conducted with gas at P_a, 44.0 psig*, at a frequency in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions, except for tests involving:

   1. Air locks,

   2. Main steam line isolation valves,

   3. Containment isolation valves in hydrostatically tested lines which penetrate the primary containment, and

e. Air locks shall be tested and demonstrated OPERABLE per Surveillance Requirement 4.6.1.3.

f. Main steam line isolation valves shall be leak tested at a frequency in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions.

g. Containment isolation valves in hydrostatically tested lines which penetrate the primary containment shall be leak tested at least once per 24 months, not to exceed the requirements of 10CFR50, Appendix J.

h. The provisions of Specification 4.0.2 are not applicable to Specifications 4.6.1.2a., 4.6.1.2b., 4.6.1.2c., 4.6.1.2d., 4.6.1.2e., and 4.6.1.2f.

*Unless a hydrostatic test is required per Table 3.6.3-1.

PRIMARY CONTAINMENT AIR LOCK

LIMITING CONDITION FOR OPERATION

3.6.1.3 The primary containment air lock shall be OPERABLE with:

a. Both doors closed except when the air lock is being used for normal transit entry and exit through the containment, then at least one air lock door shall be closed, and

b. An overall air lock leakage rate of less than or equal to 0.05 L_a at P_a, 44.0 psig.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2*, and 3.

ACTION:

a. With one primary containment air lock door inoperable:

1. Maintain at least the OPERABLE air lock door closed and either restore the inoperable air lock door to OPERABLE status within 24 hours or lock the OPERABLE air lock door closed.

2. Operation may then continue until performance of the next required overall air lock leakage test provided that the OPERABLE air lock door is verified to be locked closed at least once per 31 days.

3. Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

4. The provisions of Specification 3.0.4 are not applicable.

b. With the primary containment air lock inoperable, except as a result of an inoperable air lock door, maintain at least one air lock door closed; restore the inoperable air lock to OPERABLE status within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

---

*See Special Test Exception 3.10.1.

SURVEILLANCE REQUIREMENTS

4.6.1.3 The primary containment air lock shall be demonstrated OPERABLE:

a. By verifying the seal leakage rate to be less than or equal to 5 scf per hour when the gap between the door seals is pressurized to 10 psig:

   1. within 72 hours after each closing, except when the air lock is being used for multiple entries, then at least once per 72 hours; and

   2. prior to establishing PRIMARY CONTAINMENT INTEGRITY when the air lock has been used and no maintenance has been performed on the air lock.**

b. By conducting an overall air lock leakage test at P_a, 44.0 psig, and by verifying that the overall air lock leakage rate is within its limit:

   1. At least once per 6 months,* and

   2. Prior to establishing PRIMARY CONTAINMENT INTEGRITY when maintenance has been performed on the air lock that could affect the air lock sealing capability.**

c. At least once per 6 months by verifying that only one door in the air lock can be opened at a time.***

*The provisions of Specification 4.0.2 are not applicable.

**Exemption to Appendix J, Paragraph III.D.2.(b)(ii) of 10 CFR Part 50.

***Except that the airlock doors need not be opened to verify interlock OPERABILITY when the primary containment is inerted, provided that the airlock doors' interlock is tested within 8 hours after the primary containment has been deinerted and provided the shield door to the airlock is maintained locked closed.

CONTAINMENT SYSTEMS

MSIV LEAKAGE ALTERNATE DRAIN PATHWAY

LIMITING CONDITION FOR OPERATION

3.6.1.4 The MSIV Leakage Alternate Drain Pathway shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With the MSIV Leakage Alternate Drain Pathway inoperable, restore the pathway to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.4 The MSIV Leakage Alternate Drain Pathway shall be demonstrated OPERABLE:

a. In accordance with 4.0.5, by cycling each motor operated valve, required to be repositioned, through at least one complete cycle of full travel.

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PRIMARY CONTAINMENT STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.5 The structural integrity of the primary containment shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.5.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With the structural integrity of the primary containment not conforming to the above requirements, restore the structural integrity to within the limits within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.5.1 The structural integrity of the exposed accessible interior and exterior surfaces of the primary containment, including the liner plate, shall be determined during the shutdown for each Type A containment leakage rate test by a visual inspection of those surfaces. This inspection shall be performed prior to the Type A containment leakage rate test to verify no apparent changes in appearance or other abnormal degradation.

4.6.1.5.2 Reports Any abnormal degradation of the primary containment structure detected during the above required inspections shall be reported in a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days. This report shall include a description of the condition of the liner and concrete, the inspection procedure, the tolerances on cracking, and the corrective actions taken.

DRYWELL AND SUPPRESSION CHAMBER INTERNAL PRESSURE

LIMITING CONDITION FOR OPERATION

3.6.1.6 Drywell and suppression chamber internal pressure shall be maintained between -1.0 and +2.0 psig.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With the drywell and/or suppression chamber internal pressure outside of the specified limits, restore the internal pressure to within the limit within 1 hour or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.6 The drywell and suppression chamber internal pressure shall be determined to be within the limits at least once per 12 hours.

DRYWELL AVERAGE AIR TEMPERATURE

LIMITING CONDITION FOR OPERATION

3.6.1.7 Drywell average air temperature shall not exceed 135°F.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With the drywell average air temperature greater than 135°F, reduce the average air temperature to within the limit within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.7 The drywell average air temperature shall be the volumetric average of the temperatures at the following locations and shall be determined to be within the limit at least once per 24 hours:

	Approximate Elevation	Number of Installed Sensors*
a.	330'	3
b.	320'	3
c.	260'	3
d.	248'	6

*At least one reading from each elevation is required for a volumetric average calculation.

DRYWELL AND SUPPRESSION CHAMBER PURGE SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.1.8 The drywell and suppression chamber purge system may be in operation for up to 90 hours each 365 days with the supply and exhaust isolation valves in one supply line and one exhaust line open for inerting, deinerting, or pressure control.*

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

a. With a drywell and/or suppression chamber purge supply and/or exhaust isolation valve open, except as permitted above, close the valve(s) within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.8 Before being opened, the drywell and suppression chamber purge supply and exhaust butterfly isolation valves shall be verified not to have been open for more than 90 hours in the previous 365 days.*

*Valves open for pressure control are not subject to the 90 hour per 365 day limit provided the 1-inch/2-inch bypass line is being utilized.

3/4.6.2 DEPRESSURIZATION SYSTEMS

SUPPRESSION CHAMBER

LIMITING CONDITION FOR OPERATION

3.6.2.1 The suppression chamber shall be OPERABLE with:

a. The pool water:

1. Volume* between 122,120 ft^3 and 134,600 ft^3, equivalent to a level between 22' 0" and 24' 3", and a

2. Maximum average temperature of 95°F except that the maximum average temperature may be permitted to increase to:

   a) 105°F during testing which adds heat to the suppression chamber.

   b) 110°F with THERMAL POWER less than or equal to 1% of RATED THERMAL POWER.

   c) 120°F with the main steam line isolation valves closed following a scram, one in each of the eigth locations.

b. Drywell-to-suppression chamber bypass leakage less than or equal to 10% of the acceptable $A/\sqrt{K}$ design value of 0.0500 ft^2.

c. At least eight suppression pool water temperature instrumentation indicators, one in each of the eight locations.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

a. With the suppression chamber water level outside the above limits, restore the water level to within the limits within 1 hour or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. With the suppression chamber average water temperature greater than 95°F, restore the average temperature to less than or equal to 95°F within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours, except, as permitted above:

1. With the suppression chamber average water temperature greater than 105°F during testing which adds heat to the suppression chamber, stop all testing which adds heat to the suppression chamber and restore the average temperature to less than 95°F within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

2. With the suppression chamber average water temperature greater than:

   a) 95°F for more than 24 hours and THERMAL POWER greater than 1% of RATED THERMAL POWER, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.

   b) 110°F, place the reactor mode switch in the Shutdown position and operate at least one residual heat removal loop in the suppression pool cooling mode.

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*Includes the volume inside the pedestal.

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

PRIMARY CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 PRIMARY CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2*, and 3.

ACTION:

Without PRIMARY CONTAINMENT INTEGRITY, restore PRIMARY CONTAINMENT INTEGRITY within 1 hour or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.1 PRIMARY CONTAINMENT INTEGRITY shall be demonstrated:

a. After each closing of each penetration subject to Type B testing, except the primary containment air locks, if opened following Type A or B test, by leak rate testing the seals with gas at P_a, 44.0 psig, and verifying that when the measured leakage rate for these seals is added to the leakage rates determined pursuant to Surveillance Requirement 4.6.1.2d. for all other Type B and C penetrations, the combined leakage rate is less than or equal to 0.60 L_a.

b. At least once per 31 days by verifying that all primary containment penetrations** not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in position, except as provided in Table 3.6.3-1 of Specification 3.6.3.

c. By verifying the primary containment air lock is in compliance with the requirements of Specification 3.6.1.3.

d. By verifying the suppression chamber is in compliance with the requirements of Specification 3.6.2.1.

*See Special Test Exception 3.10.1

**Except valves, blind flanges, and deactivated automatic valves which are located inside the containment, and are locked, sealed, or otherwise secured in the closed position. These penetrations shall be verified closed during each COLD SHUTDOWN except such verification need not be performed when the primary containment has not been deinerted since the last verification or more often than once per 92 days.

PRIMARY CONTAINMENT LEAKAGE

LIMITING CONDITION FOR OPERATION

3.6.1.2 Primary containment leakage rates shall be limited to:

a. An overall integrated leakage rate of less than or equal to L_a, 0.500 percent by weight of the containment air per 24 hours at P_a, 44.0 psig.

b. A combined leakage rate of less than or equal to 0.60 L_a for all penetrations and all valves listed in Table 3.6.3-1, except for main steam line isolation valves* and valves which are hydrostatically tested per Table 3.6.3-1, subject to Type B and C tests when pressurized to P_a, 44.0 psig.

c. *Less than or equal to 100 scf per hour through any one main steam isolation valve not to exceed 200 scf per hour for all four main steam lines, when tested at P_t, 22.0 psig.

d. A combined leakage rate of less than or equal to 1 gpm times the total number of containment isolation valves in hydrostatically tested lines which penetrate the primary containment, when tested at 1.10 P_a, 48.4 psig.

APPLICABILITY: When PRIMARY CONTAINMENT INTEGRITY is required per Specification 3.6.1.1.

ACTION:

With:

a. The measured overall integrated primary containment leakage rate exceeding 0.75 L_a, or

b. The measured combined leakage rate for all penetrations and all valves listed in Table 3.6.3-1, except for main steam line isolation valves* and valves which are hydrostatically tested per Table 3.6.3-1, subject to Type B and C tests exceeding 0.60 L_a, or

c. The measured leakage rate exceeding 100 scf per hour through any one main steam isolation valve, or exceeding 200 scf per hour for all four main steam lines, or

d. The measured combined leakage rate for all containment isolation valves in hydrostatically tested lines which penetrate the primary containment exceeding 1 gpm times the total number of such valves,

restore:

a. The overall integrated leakage rate(s) to less than or equal to 0.75 L_a, and

*Exemption to Appendix J of 10 CFR Part 50.

LIMITING CONDITION FOR OPERATION (Continued)

:TION: (Continued)

b. The combined leakage rate for all penetrations and all valves listed in Table 3.6.3-1, except for main steam line isolation valves* and valves which are hydrostatically tested per Table 3.6.3-1, subject to Type B and C tests to less than or equal to 0.60 L_a, and

c. The leakage rate to ≤11.5 scf per hour for any main steam isolation valve that exceeds 100 scf per hour, and restore the combined maximum pathway leakage to ≤200 scf per hour, and

d. The combined leakage rate for all containment isolation valves in hydrostatically tested lines which penetrate the primary containment to less than or equal to 1 gpm times the total number of such valves,

prior to increasing the reactor coolant system temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The primary containment leakage rates shall be demonstrated at the following test schedule and shall be determined in conformance with the criteria specified in Appendix J of 10 CFR Part 50 using the methods and provisions of ANSI 45.4-1972 and BN-TOP-1 and verifying the result by the Mass Point Methodology described in ANSI N56.8-1981:

a. Type A Overall Integrated Containment Leakage Rate tests shall be conducted at P_a, in accordance with 10CFR5C, Appendix J, as modified by approved exemptions.

b. If any periodic Type A test fails, or if two consecutive Type A tests fail, a Type A test shall be performed in accordance with 10CFR50, Appendix J, as modified by approved exemptions.

c. The accuracy of each Type A test shall be verified by a supplemental test which:

1. Confirms the accuracy of the test by verifying that the difference between the supplemental data and the Type A test data is within $0.25L_a$. The formula to be used is: $[L_o + L_{am} - 0.25\ L_a] \le L_c \le [L_o + L_{am} + 0.25\ L_a]$ where L_c = supplemental test result; L_o = superimposed leakage; L_{am} = measured Type A leakage.

2. Has duration sufficient to establish accurately the change in leakage rate between the Type A test and the supplemental test.

3. Requires the quantity of gas injected into the containment or bled from the containment during the supplemental test to be between 0.75 L_a and 1.25 L_a.

* Exemption to Appendix "J" to 10 CFR Part 50.

SURVEILLANCE REQUIREMENTS (Continued)

d. Type B and C tests shall be conducted with gas at P_a, 44.0 psig*, at a frequency in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions, except for tests involving:

   1. Air locks,

   2. Main steam line isolation valves,

   3. Containment isolation valves in hydrostatically tested lines which penetrate the primary containment, and

e. Air locks shall be tested and demonstrated OPERABLE per Surveillance Requirement 4.6.1.3.

f. Main steam line isolation valves shall be leak tested at a frequency in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions.

g. Containment isolation valves in hydrostatically tested lines which penetrate the primary containment shall be leak tested at least once per 24 months, not to exceed the requirements of 10 CFR 50, Appendix J.

h. The provisions of Specification 4.0.2 are not applicable to Specifications 4.6.1.2a., 4.6.1.2b., 4.6.1.2c., 4.6.1.2d., 4.6.1.2e., and 4.6.1.2f.

*Unless a hydrostatic test is required per Table 3.6.3-1.

PRIMARY CONTAINMENT AIR LOCK

LIMITING CONDITION FOR OPERATION

3.6.1.3 The primary containment air lock shall be OPERABLE with:

a. Both doors closed except when the air lock is being used for normal transit entry and exit through the containment, then at least one air lock door shall be closed, and

b. An overall air lock leakage rate of less than or equal to 0.05 L_a at P_a, 44.0 psig.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2*, and 3.

ACTION:

a. With one primary containment air lock door inoperable:

1. Maintain at least the OPERABLE air lock door closed and either restore the inoperable air lock door to OPERABLE status within 24 hours or lock the OPERABLE air lock door closed.

2. Operation may then continue until performance of the next required overall air lock leakage test provided that the OPERABLE air lock door is verified to be locked closed at least once per 31 days.

3. Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

4. The provisions of Specification 3.0.4 are not applicable.

b. With the primary containment air lock inoperable, except as a result of an inoperable air lock door, maintain at least one air lock door closed; restore the inoperable air lock to OPERABLE status within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

*See Special Test Exception 3.10.1.

4.6.1.3 The primary containment air lock shall be demonstrated OPERABLE:

a. By verifying the seal leakage rate to be less than or equal to 5 scf per hour when the gap between the door seals is pressurized to 10 psig:

   1. within 72 hours after each closing, except when the air lock is being used for multiple entries, then at least once per 72 hours; and

   2. prior to establishing PRIMARY CONTAINMENT INTEGRITY when the air lock has been used and no maintenance has been performed on the air lock.**

b. By conducting an overall air lock leakage test at P_a, 44.0 psig, and by verifying that the overall air lock leakage rate is within its limit:

   1. At least once per 6 months,* and

   2. Prior to establishing PRIMARY CONTAINMENT INTEGRITY when maintenance has been performed on the air lock that could affect the air lock sealing capability.**

c. At least once per 6 months by verifying that only one door in the air lock can be opened at a time.***

*The provisions of Specification 4.0.2 are not applicable.

**Exemption to Appendix J, Paragraph III.D.2.(b)(ii) of 10 CFR Part 50.

***Except that the airlock doors need not be opened to verify interlock OPERABILITY when the primary containment is inerted, provided that the airlock doors' interlock is tested within 8 hours after the primary containment has been deinerted and provided the shield door to the airlock is maintained locked closed.

IV LEAKAGE ALTERNATE DRAIN PATHWAY

LIMITING CONDITION FOR OPERATION

3.6.1.4 The MSIV Leakage Alternate Drain Pathway shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With the MSIV Leakage Alternate Drain Pathway inoperable, restore the pathway to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.4 The MSIV Leakage Alternate Drain Pathway shall be demonstrated OPERABLE:

a. In accordance with 4.0.5, by cycling each motor operated valve, required to be repositioned, through at least one complete cycle of full travel.

PRIMARY CONTAINMENT STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.5 The structural integrity of the primary containment shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.5.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With the structural integrity of the primary containment not conforming to the above requirements, restore the structural integrity to within the limits within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.5.1 The structural integrity of the exposed accessible interior and exterior surfaces of the primary containment, including the liner plate, shall be determined during the shutdown for each Type A containment leakage rate test by a visual inspection of those surfaces. This inspection shall be performed prior to the Type A containment leakage rate test to verify no apparent changes in appearance or other abnormal degradation.

4.6.1.5.2 Reports Any abnormal degradation of the primary containment structure detected during the above required inspections shall be reported in a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days. This report shall include a description of the condition of the liner and concrete, the inspection procedure, the tolerances on cracking, and the corrective actions taken.

DRYWELL AND SUPPRESSION CHAMBER INTERNAL PRESSURE

LIMITING CONDITION FOR OPERATION

3.6.1.6 Drywell and suppression chamber internal pressure shall be maintained between -1.0 and +2.0 psig.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With the drywell and/or suppression chamber internal pressure outside of the specified limits, restore the internal pressure to within the limit within 1 hour or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.6 The drywell and suppression chamber internal pressure shall be determined to be within the limits at least once per 12 hours.

DRYWELL AVERAGE AIR TEMPERATURE

LIMITING CONDITION FOR OPERATION

3.6.1.7 Drywell average air temperature shall not exceed 135°F.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With the drywell average air temperature greater than 135°F, reduce the average air temperature to within the limit within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.7 The drywell average air temperature shall be the volumetric average of the temperatures at the following locations and shall be determined to be within the limit at least once per 24 hours:

	Approximate Elevation	Number of Installed Sensors*
a.	330'	3
b.	320'	3
c.	260'	3
d.	248'	6

*At least one reading from each elevation is required for a volumetric average calculation.

DRYWELL AND SUPPRESSION CHAMBER PURGE SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.1.8 The drywell and suppression chamber purge system may be in operation for up to 180 hours each 365 days with the supply and exhaust isolation valves in one supply line and one exhaust line open for inerting, deinerting, or pressure control.*

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

a. With a drywell and/or suppression chamber purge supply and/or exhaust isolation valve open, except as permitted above, close the valve(s) within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.8 Before being opened, the drywell and suppression chamber purge supply and exhaust butterfly isolation valves shall be verified not to have been open for more than 180 hours in the previous 365 days.*

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*Valves open for pressure control are not subject to the 180 hour per 365 day limit provided the 1-inch/2-inch bypass line is being utilized.

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CONTAINMENT SYSTEMS

3/4.6.2 DEPRESSURIZATION SYSTEMS

SUPPRESSION CHAMBER

LIMITING CONDITION FOR OPERATION

3.6.2.1 The suppression chamber shall be OPERABLE with:

a. The pool water:

1. Volume* between 122,120 ft^3 and 134,600 ft^3, equivalent to a level between 22' 0" and 24' 3", and a

2. Maximum average temperature of 95°F except that the maximum average temperature may be permitted to increase to:

a) 105°F during testing which adds heat to the suppression chamber.

b) 110°F with THERMAL POWER less than or equal to 1% of RATED THERMAL POWER.

c) 120°F with the main steam line isolation valves closed following a scram.

b. Drywell-to-suppression chamber bypass leakage less than or equal to 10% of the acceptable $A/\sqrt{K}$ design value of 0.0500 ft^2.

c. At least eight suppression pool water temperature instrumentation indicators, one in each of the eight locations.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

a. With the suppression chamber water level outside the above limits, restore the water level to within the limits within 1 hour or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. With the suppression chamber average water temperature greater than 95°F, restore the average temperature to less than or equal to 95°F within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours, except, as permitted above:

1. With the suppression chamber average water temperature greater than 105°F during testing which adds heat to the suppression chamber, stop all testing which adds heat to the suppression chamber and restore the average temperature to less than 95°F within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

2. With the suppression chamber average water temperature greater than:

a) 95°F for more than 24 hours and THERMAL POWER greater than 1% of RATED THERMAL POWER, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.

b) 110°F, place the reactor mode switch in the Shutdown position and operate at least one residual heat removal loop in the suppression pool cooling mode.

*Includes the volume inside the pedestal.

Initial Submission
Written RO

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WRITTEN EXAMINATION
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						Plant Generics		Plant Systems						Emergency/Abnormal Evolutions				
								Group 1		Group 2		Group 3		Group 1		Group 2		Group 3
						13%	17%	28%	23%	19%	13%	4%	4%	13%	26%	19%	17%	4%
Q#	Topic	Reference	K&A			RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO
1	Recirc	0040.04	202001	K6.07	3.3					187	187							
2	Instrum.	0050.09	216000	K3.07	3.9			169	169									
3	CRDH	0070.04	201001	K1.09	3.1			257			257							
4	RDCS	0080.06	201002	K4.02	3.5			192			192							
5	RWCU	0110.06b	204000	A2.01	3.2					199	199							
6	SRM	0240.07	215004	K3.02	3.4			103	103									
7	ADS	0330.03f	218000	K2.01	3.1			131	131									
8	HPCI	0340.15	206000	A1.06	3.7			219	219									
9	LPCI	0370.08g	203000	K4.10	3.9			223	223									
10	RPS	0300.04	212000	K4.12	3.9			252	252									
11	RCIC	0380.08	217000	A4.02	3.9			262	262									
12	CAT	C&TM 3.4.3	294001	K1.02	4.5	209	209											
13	CE HVAC	0450.09	290003	A3.01	3.3					231	231							
14	SSE	0495.06	245000	K6.01	2.8					207	207							
15	OG	0510.09	271000	K3.02	3.3					266	266							
16	Elect. Sfty.	IS&H 3-9	294001	K1.07	3.6	229	229											
17	MN/AUX PWR	0640.02	262001	A2.06	2.7				274	274								
18	RHRSW	0400.05	203000	K4.13	3.7			222	222									
19	Confined Space	IS&H 3-1	294001	K1.14	3.4	256	256											
20	NSSSS	0180.02	223002	K1.10	3.1			218	218									
21	CORE SPRAY	0350.11	209000	A1.07	3.0			102	102									
22S	UPS/TS	TS 3.8.4.3	262002	SG.11	3.8						167							
22R	FPC	0750.03	233000	K1.02	2.9							258						
23	High Energy	CATM 6.1	294001	K1.09	3.8	213	213											
24	FWLCS	0550.04	259002	K3.01	3.8			170	170									
25	IRM	0250.09	215003	K4.02	4.0			101			101							
						4	4	**14**	12	**6**	9	**1**	0	**0**	0	**0**	0	**0**

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Q#	Topic	Reference	K&A			Plant Generics 13% RO	Plant Generics 17% SRO	Plant Systems Group 1 28% RO	Plant Systems Group 1 23% SRO	Plant Systems Group 2 19% RO	Plant Systems Group 2 13% SRO	Plant Systems Group 3 4% RO	Plant Systems Group 3 4% SRO	Emergency/Abnormal Evolutions Group 1 13% RO	Emergency/Abnormal Evolutions Group 1 26% SRO	Emergency/Abnormal Evolutions Group 2 19% RO	Emergency/Abnormal Evolutions Group 2 17% SRO	Emergency/Abnormal Evolutions Group 3 4% RO
26	Recirc	0030.06	202001	A2.10	3.5					188	188							
27	RWM	0095.03	201006	A3.01	3.1					193	193							
28	Pri. Cont	0130.09	223001	A1.07	3.2			265	265									
29	Rad Pro	HP-C-106	294001	K1.03	3.8	228	228											
30	EHC Logic	0590.04	241000	A1.01	3.8			211	211									
31	DW Spray	0370.09	226001	K4.12	2.9				221	221								
32	AIR/EA	OT 105	295015	AK2.11	3.7									212	212			
33	IVOR/DVOR	OM-C-11.1/2	294001	K1.01	3.7	100	100											
34	480 VAC	0650.04	262001	K4.03	3.1				208	208								
35	LPRM	0260.11	215005	K3.07	3.2			190	190									
36	SPDS/EA	T 100	295006	AA2.05	4.6									142	142			
37	Work Hours	A-40	294001	A1.03	3.7	128	128											
38	SDC	0370.09d	205000	K4.02	3.7					241	241							
39	DCWS	OT 101	295010	AK3.02	3.4									162	162			
40	MSIV/EA	OT 102	295007	SG.11	4.1									168	168			
41	RPS/EA	OT 117	295015	AK2.04	4.0									189	189			
42	Temp Change	A-3	294001	A1.02	4.2	275	275											
43	Fire Pro./EA	T 111	295031	EA1.08	3.8									143	143			
44	ATWS/EA	T 117	295037	EK1.02	4.1									191	191			
45	APRM	0270.11c	215005	A2.05	3.5			214	214									
46	FWH-EHC/EA	OT 104	295014	AA1.07	4.0									157	157			
47	TPA	MOD-C-7	294001	A1.11	4.3	230	230											
48	Short Per./EA	GP-2	295014	AA2.02	3.9									159	159			
49	RPT/EA	0315.04	295025	EK2.04	3.9									173	173			
50	FWLCS/EA	OT 100	295009	AA2.02	3.6									153	153			
						5	5	*4*	6	*5*	3	*0*	0	*11*	11	*0*	0	*0*

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						Plant Generics		Plant Systems						Emergency/Abnormal Evolutions				
								Group 1		Group 2		Group 3		Group 1		Group 2		Group 3
						13%	17%	28%	23%	19%	13%	4%	4%	13%	26%	19%	17%	4%
Q#	Topic	Reference	K&A			RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO
51	DW Vent.	0140.03	223001	K4.04	3.5			240	240									
52	RE Vent	0190.08a	290001	K6.01	3.5				226	226								
53	Communications	OM-C-4.1	294001	A1.04	3.2	129	129											
54	4KV	0660.05c	262001	A4.03	3.2				259	259								
55	SBLC	0310.06	211000	A1.07	4.3			210	210									
56	CRD/EA	ON 107	295022	AK2.03	3.4											233	233	
57	MCR Alarms	OM-C-7.1	294001	A1.09	4.2	175	175											
58	CIRC WTR/EA	OT 116	295002	AK2.08	3.1											263	263	
59	HSO/SCW/EA	OT 112	295001	AK3.02	3.7											99	99	
60	RBM	0280.08	215002	A3.04	3.6					235	235							
61	RECW/EA	ON 113	295018	AK3.04	3.3											205	205	
62	Prot. Devices	OM-C-7.2	294001	K1.07	3.6	196	196											
63	Plant Air/EA	ON 119	295019	AA1.04	3.2											276	276	
64	DEOX/EA	S52.1.B	295020	AK3.06	3.3											216	216	
65	FWLCS/EA	OT 110	295008	AK3.01	3.4											158	158	
66	DCWS/EA	OT 101	295012	AK2.02	3.6											227	227	
67	CAT	C&TM 4.2	294001	K1.02	4.5	215	215											
68	DW Spray/EA	T 102	295028	SG.12	3.8											160	160	
69	DC/EA	E-2FD	295004	AK1.06	3.3											271	271	
70	Containment/EA	T 102	295029	EK1.01	3.4											163	163	
71	ARM/EA	T 103	295033	SG.11	4.0											154	154	
72	PRM/EA	0710.04	295034	EK2.01	3.9											236	236	
73	TECW/EA	ON 117	295018	AK3.02	3.3											238	238	
74	CASS/EA	0160.05	295020	AK2.02	2.6											220	220	
75	EDG	0670.05	264000	K4.02	4.0			272	272									
						4	4	3	5	3	1	0	0	0	0	15	15	0

1996 LGS
WRITTEN EXAMINATION
NRC INITIAL EXAM

						Plant Generics		Plant Systems						Emergency/Abnormal Evolutions				
								Group 1		Group 2		Group 3		Group 1		Group 2		Group 3
						13%	17%	28%	23%	19%	13%	4%	4%	13%	26%	19%	17%	4%
Q#	Topic	Reference	K&A			RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO
76S	Cont. Rod	0020.05	201003	K4.01	3.0								255					
77S	Main Stm	0120.12a	239001	SG.11	3.3								270					
78S	TIPS	0290.10	215001	K6.04	3.4								198					
79S	Refuel/EA	ERP 101	295023	AA2.05	4.6										177			
80S	FPC/EA	TS/GP	295023	SG.08	3.9										176			
81S	SCW/EA	ON 114	295005	AK2.04	3.3												171	
82S	RADWASTE	0705.02c	268000	K1.01	2.6								273					
83S	SDC/EA	S51.8.B	295021	AA1.05	3.0												201	
84S	Recirc/EA	OT 104	295014	AK2.11	3.7										254			
85S	SPOTMOS/EA	0130.07	295013	AK1.03	3.3										130			
86S	CST-RWST/EA	T 235	295030	EA1.06	3.4										204			
87S	HPCI/EA	0340.15	295007	AA1.02	3.7										152			
88S	Indications	E1	295003	AA2.02	4.3										251			
89S	CAC/EA	OT 101	295017	SG.10	3.8										268			
90S	TECW/EA	E10/20	295003	AK1.02	3.1										267			
91S	DC/EA	SE-6	295016	AK2.02	4.1										197			
92S	CAR/EA	ON 102	295017	AK2.09	2.9										269			
93S	*F017/EA	0370.10	294024	EA1.11	4.2										172			
94S	RSP/EA	SE-1	295016	AA1.08	4.0										194			
95S	ECCS Suct. Strn/EA	0370.10	295026	EK1.01	3.4										174			
96S	RW HVAC/EA	T 104	295038	EK2.01	3.4										150			
97S	Fire Pro	OM-L-10.1	294001	K1.16	3.8		225											
98S	Procedure Use	OM-C-9.1	294001	A1.01	3.4		277											
99S	MOV Operability	OM-C-7.5	294001	A1.10	4.2		200											
100S	CRS Duties	OM-L-3.2	294001	A1.03	3.7		146											
						0	4	0	0	0	0	0	4	0	15	0	2	0

1996 LGS
WRITTEN EXAMINATION
NRC INITIAL EXAM

						Plant Generics		Plant Systems						Emergency/Abnormal Evolutions				
								Group 1		Group 2		Group 3		Group 1		Group 2		Group 3
						13%	17%	28%	23%	19%	13%	4%	4%	13%	26%	19%	17%	4%
Q#	Topic	Reference	K&A			RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO
76R	Vessel	0010.08	290002	SG.04	3.2							224						
77R	Main Stm	0120.09b	239001	K4.09	3.3					278								
78R	TIPS	0290.09	215001	A1.04	2.0 *							195						
79R	Flt.Demin/EA	OT 100	295009	SG.10	4.2									141				
80R	Hi DW Press	T102	295024	SG.12	3.9									161				
81R	DC/EA	E10/20	295003	AK2.01	3.2											253		
82R	4KV/EA	SE-1	295016	AA1.04	3.1											98		
83R	CRDM	060.04	201003	K4.06	2.6					260								
84R	Radwaste	0705.02	268000	K3.04	2.7							279						
85R	Recirc F.C.	0040.08c	202002	K1.02	4.2			237										
86R	Pool Spray	0370.09b	230000	K4.03	3.5					242								
87R	FW	0540.14b	259001	A2.03	3.6			280										
88R	Pool Cooling	0370.03c	219000	A2.06	2.7					243								
89R	Main Turb	0560.07	245000	A4.07	2.9					156								
90R	NSSSS	0180.06h	223002	K3.10	2.9			264										
91R	SBGT	0733.05	261000	K4.02	2.6			217										
92R	ESW	0680.06	264000	A3.06	3.1			261										
93R	CAC	0160.05	223001	A4.10	3.2			203										
94R	DCWS	0150.6d	223001	K6.01	3.6			232										
95R	SDC/EA	ON 121	295021	AA1.02	3.5													149
96R	ON 111/EA	ON 111	295035	EK1.01	3.9													145
97R	T103/EA	SCC/T	295032	EK2.01	3.5													202
98R	T103/EA	SCC/L	295036	EK3.04	3.1													206
99R	ECCS/EA	T 102	295030	EK3.07	3.5											234		
100R	TEVENT/EA	T 104	295038	EK2.03	3.6											155		
						0	0	7	0	5	0	3	0	2	0	4	0	4

* New Operator Task Despite Low IF

NO.: 187 REV.: 4 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 202001K6.07 TAXONOMY NO.:
LESSON PLANS: LOT0040.04
:
CATEGORY: 96
SYSTEMS: RECIRC

QUESTION :

Unit 1 is at 65% power with three reactor feed pumps in Automatic. The "1B" feedflow indicator fails to 0.5 Mlb/hr.

Which ONE of the following describes when a recirc runback will occur?

a. Reactor level dropping below 27.5"

b. "1B" Condensate pump trip

c. "1B" Reactor Feed Pump trip

d. "1A" Reactor Feed Pump Discharge Valve closure

ANSWER : A

Reference: 1

NO.: 169 REV.: 0 TYPE: MC ENTERED BY: DCW DATE ENTERED: 11/25/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 216000K3.07 TAXONOMY NO.:
LESSON PLANS: LOT0050.09C
:
CATEGORY: 96
SYSTEMS: ADS RHR

QUESTION :

If conditions requiring the automatic actuation of ADS occurred with the "C" RHR pump discharge pressure transmitter failed downscale, which ONE of the following describes ADS response?

a. ONLY Division 1 ADS will operate automatically.

b. ONLY Division 3 ADS will operate automatically.

c. Both Divisions of ADS will operate automatically.

d. ADS will not operate automatically.

SWER : C

Reference: #2

NO.: 257 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 201001K1.09 TAXONOMY NO.:
LESSON PLANS: LOT0070.04
:
CATEGORY: 96
SYSTEMS: CRDH

QUESTION :

Which ONE of the following reflects the expected response to the loss of instrument air to the Control Rod Drive Hydraulic system during normal plant operation at 100% power?

a. RECIRCULATION PUMPS SEAL LEAKAGE HI FLOW alarms

b. CRD HCU Accumulator Trouble alarms

c. CRD Mechanism High Temperature alarms

d. Charging Water Header Low Pressure alarm

ANSWER : C

Reference: 3

NO.: 192 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 201002K4.02 TAXONOMY NO.:
LESSON PLANS: LOT0080.06
:
CATEGORY: 96
SYSTEMS: RDCS

QUESTION :

Which ONE of the following conditions will initiate a Control Rod Withdrawal Block regardless of IRM Range Switch selection, when in OPCON 2?

a. SRM Downscale

b. SRM Detector Withdrawal

c. IRM Downscale

d. IRM Detector Withdrawal

'SWER : D

Reference: 4

NO.: 199 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 204000A2.01 TAXONOMY NO.:
LESSON PLANS: LOT0110.06B
:
CATEGORY: 96
SYSTEMS: RWCU

QUESTION :

The operating RECW pump trips and the standby pump fails to start when Unit 2 is operating at 100% power.

Which ONE of the actions below will occur FIRST on RWCU as a result of the RECW loss?

a. Pumps will trip

b. Pump shaft misalignment

c. Pump Seal Cavity failure

d. HV-44-2F001 and HV-44-2F004 valves will close

ANSWER : A

Reference: 5

NO.: 103 REV.: 0 TYPE: MC ENTERED BY: PMO DATE ENTERED: 11/14/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 215004K3.02 TAXONOMY NO.:
LESSON PLANS: LOT0240.07
:
CATEGORY: 96
SYSTEMS: SRM

QUESTION :

A reactor startup is in progress. The unit is in OPCON 2. SRM Channel "B" drive motor shorted and is NOT fully inserted.

Which ONE of the following describes the plant condition that will result in a control rod withdrawal block?

a. SRM "B" indicates 50 CPS and all IRM's on range 3.

b. SRM "B" indicates 50 CPS and all IRM's on range 8.

c. SRM "B" indicates 75 CPS and all IRM's on range 2.

d. SRM "B" indicates 125 CPS and all IRM's on range 2.

ANSWER : C
Reference: #6

NO.: 131 REV.: 4 TYPE: MC FNTERED BY: MGR DATE ENTERED: 11/18/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 218000K2.01 TAXONOMY NO.:
LESSON PLANS: LOT0330.03F
:
CATEGORY: 96
SYSTEMS: ADS DC

QUESTION :

A LOCA is in progress on the unit. Plant conditions are as follows:

RPV Level = -140 inches
DW Pressure = 12.7 psig
"C" RHR - Running in DW Spray Mode
"B" RHR - Injecting to the vessel
NO other ECCS pumps are running
Division 1 DC is DE-ENERGIZED

Which ONE of the following describes the ability of the ADS to actuate?

a. Division 1 ADS Solenoids will energize and operate within 105 seconds

b. Division 3 ADS Solenoids will energize and operate within 105 seconds

c. Division 3 ADS Solenoids will energize and operate ONLY if the "D" RHR pump is started

d. Division 3 ADS Solenoids will energize and operate ONLY if the manual pushbuttons are depressed with 105 seconds expended.

ANSWER : B

Reference: #7

NO.: 219 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 206000A1.06 TAXONOMY NO.:
LESSON PLANS: LOT0340.15
:
CATEGORY: 96
SYSTEMS: HPCI

QUESTION :

Following a reactor scram, reactor level increases to +70". Reactor level is slowly dropping due to a small Drywell leak and is currently +35". Drywell pressure is 2.3 psig.

Which ONE of the following describes the action(s) required to restart HPCI?

a. Arm and depress the "HPCI Initiation" pushbutton

b. Depress the "Inboard and Outboard Reset" pushbuttons

c. Depress the "Rx Level High Reset" pushbutton

d. Depress the "Seal-In Reset" pushbutton

ANSWER : C

Reference: 8

NO.: 223 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 203000K4.10 TAXONOMY NO.:
LESSON PLANS: LOT0370.08G
:
CATEGORY: 96
SYSTEMS: RHR LPCI

QUESTION :

Unit 2 has experienced a LOCA outside primary containment.

RPV pressure	219 psig slowly lowering
RPV level	-129 inches slowly lowering
Drywell pressure	1.1 psig

All safeguards buses are energized from offsite power
DIVISIONS 1 and 4 have received LOCA signals
DIVISIONS 2 and 3 are still in standby aligned for AUTO

Which ONE of the following describes the ECCS automatic response to current given conditions?

a. 2D RHR Pump started, as discharge pressure rises over 145 psig HV-51-2F017D will open

b. Injection will commence with the 2B Core Spray loop with one pump injecting

c. DIV I ADS blowdown will commence 105 seconds after level reached -129 inches

d. No ECCS injection can occur until drywell pressure exceeds 1.68 psig

ANSWER : A

Reference: 9

NO.: 252 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 212000K4.12 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: RPS

QUESTION :

Preparations are being made to secure the Main Turbine with the following conditions:

TURBINE CONTROL VLV/STOP VLV SCRAM BYPASSED alarm
Turbine First Stage Pressure Trip Units indicate as follows:

Indicating light PIS-01-1N652A, 1N652B and 1N652D are OFF on 10C609 and 10C611

Indicating light PIS-01-1N652C is LIT on 10C609

Rx power 24%
BPV's all closed

What is the RPS response to an automatic TURBINE TRIP in this condition?

a. Half scram entry into OT-117 "RPS Failure" is required

b. Full scram on TCV RETS low pressure

c. Half scram on TSV closure

d. No RPS actuations are expected

ANSWER : C

Reference: 10

NO.: 262 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 217000A4.02 TAXONOMY NO.:
LESSON PLANS: LOT0380.08
:
CATEGORY: 96
SYSTEMS: RCIC

QUESTION :

Which ONE of the following describes how RCIC functions to prevent overfilling the Reactor Vessel?

a. Steam Supply Isolation Valves (HV-49-*F007, HV-49-*F008) close at +100" RPV level

b. Turbine Trip and Throttle Valve (HV-50-*12) closes at +54" RPV level

c. Govern Valve (FV-50-*13) ramps closed at +100" RPV level if Steam Supply Isolation Valve (HV-50-*F045) is full open

d. Steam Supply Isolation Valve (HV-50-*F045) closes at +54" RPV level, if valve was full open

ANSWER : D

Reference: 11

NO.: 209 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001K1.02 TAXONOMY NO.:
LESSON PLANS: C&TM 3.4.3
:
CATEGORY: 96
SYSTEMS: C&T

QUESTION :

If nuclear/personnel safety needs dictate an emergency clearance release and the clearance holder is not on site, then all of the following apply, EXCEPT;

a. The release may be made by the clearance holder's director/ senior manager.

b. The release may be made by Operations senior manager or designee.

c. The release may be made by phone and documented by indicating "Per Telecon" in the comments section of the clearance.

d. The release may be made after a thorough review of the work performed is completed and the job site walked down.

ANSWER : B

Reference: 12

NO.: 231 REV.: 5 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 290003A3.01 TAXONOMY NO.:
LESSON PLANS: LOT0450.09
:
CATEGORY: 96
SYSTEMS: CEHVAC

QUESTION :

An RPV variable leg instrument leak results in excess flow check valve actuation giving a DIVISION 4 low-low-low level signal.

Which ONE of the following describes the automatic response of the Control Enclosure Chill Water System if all the Control Enclosure "A" train fans are running with OA Chiller and OA Chill Water Pump?

a. No automatic response

b. OA Chiller trips, OB Chiller starts after 116 seconds

c. OB Chiller compressor starts after 167 seconds

d. OB Chiller will start only if the OA Chiller trips

ANSWER : C

Reference: 13

NO.: 207 REV.: 2 TYPE: MC ENTERED BY: DCW DATE ENTERED: 12/01/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 245000K6.01 TAXONOMY NO.:
LESSON PLANS: LOT0495.06
:
CATEGORY: 96
SYSTEMS: SSE

QUESTION :

Following a loss of 10Y105, the following MCR indications are present for the Steam Seal Evaporator:

SSE Hi Level alarm
SSE Lo Level alarm
SSE level indicator (LI-07-157) is downscale at -7"
Sealing steam pressure (PI-07-161) reads 4 psig

Which ONE of the below statements describes actions to maintain Sealing Steam.

a. No action required. SSE level indicator in MCR (LI-07-157) is independent of SSE level control instrumentation. Condensate makeup is not affected.

b. Condensate makeup level control valve bypass (HV-07-156) valve must be throttled open, in coordination with an EO monitoring SSE level locally.

c. Condensate makeup level control outlet valve (HV-07-157) must be closed to prevent flooding SSE and carryover to steam seals.

d. No action required. Auxiliary steam will automatically provide sealing steam when SSE steam seal header drops below 3.5 psig.

ANSWER : B

Reference: 14

NO.: 266 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 271000K3.02 TAXONOMY NO.:
LESSON PLANS: LOT0510.09
:
CATEGORY: 96
SYSTEMS: OG

QUESTION :

During 100% power operation, how would an extended shutdown of the Unit 2 Glycol Refrigeration system affect Offgas system operation and radioactive release rates?

a. Increased process flow dewpoint indication, decreased fission product gas holdup times, increased North Stack radioactive release rates

b. Decreased process flow dewpoint indication, decreased N16 holdup times, increased South Stack radioactive release rates

c. Increased process flow dewpoint indication, increased fission product gas holdup times, increased South Stack radioactive release rates

d. Decreased process flow dewpoint indication, decreased N16 holdup times, increased North Stack radioactive release rates

ANSWER : A

Reference: 15

NO.: 229 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001K1.07 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: IS&H

QUESTION :

Complete the following:

"During application of a Standard Safety Ground (SSG), the time interval between _______ followed by _______ should be minimized."

a. the Zero-Voltage Test, SSG application

b. de-energizing the conductor, the Zero-Voltage Test

c. the Zero-Voltage Test, grounding permission

d. Clearance review, the Zero-Voltage Test

ANSWER : A

Reference: 16

NO.: 274 REV.: 3 TYPE: MC ENTERED BY: DCW DATE ENTERED: 12/06/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 262001A2.06 TAXONOMY NO.:
LESSON PLANS: LOT0640.02
:
CATEGORY: 96
SYSTEMS: ACDIST

QUESTION :

Both units are operating at 100% power. 10 Station Auxiliary Bus is deenergized for a bus outage. The 20 Station Auxiliary Bus Supply Breaker (205) trips open due to auto transformer 4A differential overcurrent.

Complete the following:

"One minute later 22 Unit Aux Bus will be __________ and D22 bus will be ___________."

a. deenergized; deenergized

b. energized; deenergized

c. deenergized; energized

d. energized; energized

ANSWER : D

Reference: 17

NO.: 222 REV.: 4 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 203000K4.13 TAXONOMY NO.:
LESSON PLANS: LOT0400.05
:
CATEGORY: 96
SYSTEMS: RHRSW

QUESTION :

Both loops of RHRSW are in service to support Suppression Pool cooling on Unit 1 during an ATWS with the following conditions:

RPV level	-135"
RPV pressure	1050 psig
Rx power	31%
Post LOCA Radiation Monitors	2000 R/hr

What is the effect on the RHRSW flowpath if both RHR heat exchangers have known tube leaks?

a. OA RHRSW Pump will trip, Spray and Spray Bypass Valves will auto shut.

b. HV-51-1F014B and HV-51-1F068B will close, OD RHRSW Pump will trip on high discharge pressure.

c. OB RHRSW Pump will trip, all B loop valves will auto shut (HV-51-1F014B, 2F014B, 1F068A, and 2F068A)

d. All RHRSW Pumps are running in OVERRIDE following start after LOCA signal. The pumps will NOT trip in OVERRIDE.

ANSWER : B

Reference: 18

NO.: 256 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001K1.14 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: IS&H

QUESTION :

Which ONE of the following personnel is authorized to perform an emergency rescue in a permit required confined space?

a. EMT

b. Health Physics Technician

c. Confined Space Attendant

d. Atmospheric monitoring personnel

ANSWER : A

.ference: 19

NO.: 218 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 223002K1.10 TAXONOMY NO.:
LESSON PLANS: LOT0180.02
:
CATEGORY: 96
SYSTEMS: NSSSS

QUESTION :

Unit 2 is operating at 100% power with Drywell venting in progress. An RWCU backwash is commenced and the "Unit 1 & 2 South Stack Hi and Hi-Hi Radiation" alarms are received. Assuming no operator actions are taken, complete the following statement:

"The Group VIB CAC valves will _______ and the RWCU Backwash will _______ in response to the rad release."

a. remain open/continue

b. remain open/terminate

c. isolate/continue

d. isolate/terminate

ANSWER : A

Reference: 20

NO.: 102 REV.: 2 TYPE: MC ENTERED BY: PMO DATE ENTERED: 11/14/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 209001A1.07 TAXONOMY NO.:
LESSON PLANS: LOT0350.11
:
CATEGORY: 96
SYSTEMS: CS 4KV

QUESTION :

A sustained loss of off-site power is in progress. Unit 1 is in OPCON 3 and Unit 2 is in OPCON 4. All 4 Unit 1 EDG's started, no EDG's started on Unit 2. The Shift Manager has given his permission to cross-tie the D11 and D21 4KV Safeguard busses using D11 EDG. Following the cross-tie, a LOCA signal occurs on Unit 1 and D11 EDG load is 3000 Kw. Which ONE of the following is correct concerning D11 EDG load?

a. Securing the 1A CS pump will allow D11 EDG load to drop below its continuous load rating.

b. The D11 EDG can run indefinitely without exceeding any of its load ratings.

c. The D11 EDG should be tripped immediately to prevent damage due to overloading.

d. The D11 EDG will not accept further load due to isochronous mode of operation.

ANSWER : A
Reference: #21

NO.: 258 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 233000K1.02 TAXONOMY NO.:
LESSON PLANS: LOT0750.03
:
CATEGORY: 96
SYSTEMS: FP

QUESTION :

*** RO ONLY ***

- Unit 2 is in OPCON 5
- Reactor cavity is flooded with Fuel Pool Gates removed
- Shutdown Cooling has been out of service for two days
- Alternate Decay Heat Removal is provided by Fuel Pool Cooling (FPC)
- Flush of the 2A SDC loop using reactor cavity water is in progress through HV-51-2F024A (SUPP POOL CLG A) in preparation for restoring SDC following LLRT

Which ONE of the following describes proper control of flush rate rough HV-51-2F024A?

a. Throttle open HV-51-2F024A to a flowrate that will maintain fuel pool weir plate overflow

b. Open HV-51-2F024A until skimmer surge tank level starts lowering and maintain that flowrate until skimmer surge tank level of 5'

c. Maintain flush rate through HV-51-2F024A such that suppression pool level will rise no more than 10 inches over the 5 minute flush period

d. Flush rate through HV-51-2F024A is limited only by maintaining the 22 feet of water over fuel in the vessel for the 5 minute flush period

ANSWER : A

Reference: 22R (See SRO 80S (176))

NO.: 213 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001K1.09 TAXONOMY NO.:
LESSON PLANS: C&TM 6.1.8
:
CATEGORY: 96
SYSTEMS: C&T

QUESTION :

Which ONE of the following situations would require a clearance to provide work area isolation by two closed valves in series with a drain valve between them open?

a. Gas systems at pressures greater than 200 psig.

b. Fluid systems at pressures greater than 500 psig.

c. Any work area in which a normal depressurization path cannot be provided within the clearance boundary.

d. Any work area within a confined space as defined by Industrial Health and Safety Manual.

ANSWER : B

Reference: 23

NO.: 170 REV.: 1 TYPE: MC ENTERED BY: DCW DATE ENTERED: 11/25/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 259002K3.01 TAXONOMY NO.:
LESSON PLANS: LOT0550.04
:
CATEGORY: 96
SYSTEMS: FWLCS

QUESTION :

Feedwater Level Control System Logic receives input from feed flow and steam flow transmitters. If the reactor is at 100% power and Feedwater Control is in the Automatic 3-element mode, which ONE of the following will result in a higher than normal RPV level?

a. One steam flow transmitter output fails downscale OR one feed flow transmitter output fails upscale.

b. One steam flow transmitter output fails upscale OR one feed flow transmitter output fails downscale.

c. One steam flow transmitter output fails upscale OR one feed flow transmitter output fails upscale.

d. One steam flow transmitter output fails downscale OR one feed flow transmitter fails downscale.

ANSWER : B

Reference: #24

NO.: 101 REV.: 3 TYPE: MC ENTERED BY: PMO DATE ENTERED: 11/14/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 215003K4.02 TAXONOMY NO.:
LESSON PLANS: LOT0250.09
:
CATEGORY: 96
SYSTEMS: IRM RPS

QUESTION :

All IRM's are currently indicating power mid-scale on Range 3. Which ONE of the following completes the statement below?

"One of the IRMs goes upscale, a reactor half-scram will occur if the Mode Switch is in which position(s) ________."

a. Refuel only

b. Start up only

c. Start up and refuel only

d. Start up, refuel and run

ANSWER : D

Reference: #25

NOTE: On range 3 of the IRM's, all APRM's are downscale.

NO.: 188 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 202001A2.10 TAXONOMY NO.:
LESSON PLANS: LOT0030.06
:
CATEGORY: 96
SYSTEMS: RECIRC

QUESTION :

Unit 1 is in "STARTUP" with reactor pressure at 650#. The operating CRD pump tripped and efforts are underway to restore CRD flow.

Given the following indications for "1B" recirc pump:

#1 Seal Cavity Pressure 650#

#2 Seal Cavity Pressure 200#

SEAL LEAKAGE HI FLOW ALARM annunciated

SEAL STAGE HI/LO FLOW ALARM annunciated

.ich ONE of the following describes the status of "1B" recirc seals?

a. Both seals are operating properly

b. #1 seal has failed

c. #2 seal has failed

d. Both seals have failed

ANSWER : C

Reference: 26

NO.: 193 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 201006A3.01 TAXONOMY NO.:
LESSON PLANS: LOT0095.03
:
CATEGORY: 96
SYSTEMS: RWM

QUESTION :

Using the attached drawing (Question 27 reference) of the Rod Worth Minimizer Panel, select the ONE choice below that describes the current status of the system.

a. Above LPSP, no blocks are applied

b. An Insert Block is applied, rod withdrawal is permitted

c. A Withdraw Block is applied, rod insertion is permitted

d. An Insert and Withdraw Block are applied

'SWER : D

Reference: 27

NO.: 265 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 223001A1.07 TAXONOMY NO.:
LESSON PLANS: LOT0130.09
:
CATEGORY: 96
SYSTEMS: PC

QUESTION :

A LOCA is in progress on Unit 2 due to a steam leak in the drywell. No operator actions have been taken. Suppression Pool level is normal and Drywell pressure is 20 psig and slowly rising. What is the expected value for Suppression Chamber pressure?

a. 10 psig

b. 15 psig

c. 20 psig

d. 25 psig

ANSWER : B

Reference: 28

NO.: 228 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001K1.03 TAXONOMY NO.:
LESSON PLANS: LOT1760.02C
:
CATEGORY: 96
SYSTEMS: HP

QUESTION :

A maintenance worker is scheduled to work on a RWCU pump in a high radiation area. The worker's TEDE for this year is 3.3 rem. All of the following individuals must approve the Dose Extension Request for this worker EXCEPT:

a. HP Supervisor

b. Dosimetry Physicist

c. Radiation Protection Manager

d. Plant Manager

SWER : B

Reference: 29

NO.: 211 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 241000A1.01 TAXONOMY NO.:
LESSON PLANS: LOT0590.04
:
CATEGORY: 96
SYSTEMS: EHC

QUESTION :

With the unit at 80% power, which ONE of the following describes the effect of depressing the INCREASE pushbutton associated with the BYPASS VALVE OPENING JACK SELECTOR?

a. There is NO effect.

b. Bypass valves open, control valves close to maintain pressure.

c. Bypass valves open, reactor pressure decreases until a group one isolation occurs.

d. Bypass valves will open, control valves open in response to new pressure setpoint.

ANSWER : B

Reference: #30

NO.: 221 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 226001K4.12 TAXONOMY NO.:
LESSON PLANS: LOT0370.09A
:
CATEGORY: 96
SYSTEMS: RHR

QUESTION :

The following conditions exist for Unit 2:

RPV level -118"
Drywell pressure 25 psig
Drywell temperature 260°F
RPV level is being maintained with;
2A Core Spray loop at 3200 gpm
2B LPCI loop at 5000 gpm
2C LPCI loop at 5000 gpm

Which ONE of the following describes the ability to spray the drywell?
"Drywell sprays can be commenced. . . "

a. only after RPV pressure is lowered

b. only after the DIV I Core Spray initiation pb is depressed

c. immediately with the "A" Loop of RHR

d. immediately with fire water aligned to the "B" Loop

ANSWER : C

Reference: 31

NO.: 212 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295015AK2.11 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: IA

QUESTION :

A complete loss of instrument air has resulted in a reactor scram. Scram valves opened but all rods have failed to fully insert. Instrument air header pressure is 5 psig on both headers. T-217 "RPS/ARI Reset and Backup Method of Draining the Scram Discharge Volume" has been directed. Complete the following statement:

"Scram Discharge Volume DRAIN VALVES fail __________ and will be _____ when T-217 is completed."

a. OPEN; OPEN

b. CLOSED; OPEN

c. OPEN; CLOSED

d. CLOSED; CLOSED

ANSWER : D

Reference: #32

NO.: 100 REV.: 3 TYPE: MC ENTERED BY: PMO DATE ENTERED: 11/14/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001K1.01 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OM

QUESTION :

While conducting an independent verification (IV) using a COL, the Independent Verifier discovers a clearance tag on valve 48-1020 in the OPEN position. The valve is listed as CLOSED in the COL. Which ONE of the following is appropriate?

a. Initial and date the step and annotate the clearance number on the COL.

b. Close the valve, remove the clearance tag and attach it to the COL, initial and date the step.

c. Mark the step "N/A", annotate the clearance number on the COL, initial and date the step.

d. Annotate the clearance number and valve position on the COL and note the COL step. DO NOT initial or date the step.

ANSWER : D

Reference: #33

NO.: 208 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 262001K4.02 TAXONOMY NO.:
LESSON PLANS: LOT0650.04
:
CATEGORY: 96
SYSTEMS: 480VAC

QUESTION :

Which of the following describes the 480 VAC Non-Safeguard Load Center supply and Bus Tie Interlock?

a. Opening a Load Center Supply Breaker with the Bus Tie Breaker closed will close the alternate supply breaker.

b. Closing the alternate Load Center Supply Breaker with a supply and Bus Tie Breaker CLOSED will trip OPEN the Bus Tie Breaker.

c. Closing a Load Center Bus Tie Breaker with both supply breakers closed will trip OPEN the supply breakers.

d. Opening a Load Center Bus Tie Breaker with ONE supply breaker closed will close the alternate supply breaker.

ANSWER : B

Reference: 34

NO.: 190 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 215005K3.07 TAXONOMY NO.:
LESSON PLANS: LOT0260.11
:
CATEGORY: 96
SYSTEMS: LPRM RBM

QUESTION :

Reactor power is 97%. Rod 14-23 is being pulled from position 40 to 48. An adjacent "A" level LPRM, 16-25A goes upscale.

What effect will this have on the RBM?

a. The RBM is not affected

b. RBM reference power will increase

c. RBM reference power will decrease

d. RBM will go into a TRIP/INOP condition

.SWER : A

Reference: #35

NO.: 142 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/18/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295006AA2.05 TAXONOMY NO.:
LESSON PLANS: LOT0768.04
:
CATEGORY: 96
SYSTEMS: SPDS PMS

QUESTION :

Given the following PMS indications:

RX LEVEL -89 with light blue border
SCRAM LO +12.5" with red border
RX POWER 0.0% with yellow border
APRM DOWNSCALE with dark blue border
Scram Event Indicator display "NO SCRAM" with dark blue border
Control Rod Position display indicates all rods green

Which ONE of the following describes the status of the control rods?

a. RPS and ARI initiated, rods are inserted

b. RPS failed, ARI initiated, rods are inserted

c. RPS and ARI failed, rods are withdrawn

d. RPS failed, ARI initiated, rods are withdrawn

ANSWER : B

Reference: 36

NO.: 128 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/18/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001A1.03 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: A

QUESTION :

You have worked the following schedule over the last 7 days in support of the outage:

Monday	Off
Tuesday	06:30 to 16:30
Wednesday	06:30 to 16:30
Thursday	06:30 to 12:30
Friday	06:30 to 18:30
Saturday	06:30 to 16:30
Sunday	06:30 to 22:30
Monday	?

ich ONE of the following is the MAXIMUM number of hours you can work .uclear Safety Related) on Monday without obtaining any special authorization?

a. 0 hours

b. 4 hours

c. 8 hours

d. 12 hours

ANSWER : C

Reference: #37

NO.: 241 REV.: 2 TYPE: MC ENTERED BY: PMO DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 205000K4.02 TAXONOMY NO.:
LESSON PLANS: LOT0370.09D
:
CATEGORY: 96
SYSTEMS: RHR SDC

QUESTION :

Unit 2 is in shutdown cooling with the "2B" RHR pump when reactor pressure increases to 90#. Which ONE of the following reflects the RHR valve response?

2F006B, RHR PP S/D CLG SUCT INTERTIE VLV
2F008, RHR SHUTDOWN CLG SUCTION OUTBRD PCIV
2F009, RHR SHUTDOWN CLG SUCTION INBRD PCIV
2F015B, SHUTDOWN CLG INJECTION PCIV

	2F006B	2F008	2F009	2F015B
a.	As is	Closes	Closes	Closes
b.	As is	Closes	Closes	As is
c.	Closes	As is	Closes	As is
d.	Closes	As is	As is	As is

ANSWER : A

Reference: 38

NO.: 162 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295010AK3.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OT-101

QUESTION :

OT-101, "High Drywell Pressure", directs Drywell cooling to be maximized. Complete the following statement:

"Drywell cooling is maximized by running _______ fan(s) in each unit cooler and operating _______ Drywell chiller(s)."

a. one/one

b. one/two

c. two/one

d. two/two

ANSWER : A

Reference: 39

NO.: 168 REV.: 2 TYPE: MC ENTERED BY: DCW DATE ENTERED: 11/25/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295007SG11 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: MS

QUESTION :

The unit is at 95% power. ST-2-041-619 RPS MSIV CLOSURE FUNTIONAL TEST is in progress. The Inboard "B" Test pushbutton was depressed and released immediately after the "B" half scram was received. The unit RO reports that "RPV pressure has increased by 2 psig and continues to increase slowly". Which ONE of the following describes the actions required?

a. No pressure rise is expected for this test, immediately scram.

b. Immediately position "B" INBOARD MSIV Control Switch to CLOSE.

c. Reduce power per RMSI to keep RPV pressure less than 1053 psig.

d. Immediately depress "B" INBOARD MSIV test pushbutton.

ANSWER : C

Reference: #40

NO.: 189 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295015AK20.4 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OT117 IRM RPS

QUESTION :

A reactor startup is in progress. Power is on Range 2 of the IRM's. The unit RO allows the "A" IRM to increase to 124/125 of scale and the "F" IRM to increase to 122/125 of scale. An "A" side half scram occurs.

Which ONE of the following describes the unit RO expected actions?

a. Immediately insert a full reactor scram

b. Range up on "F" IRM to prevent a full reactor scram

c. Range up on "A" IRM and reset the "A" side half scram and continue the startup

d. Bypass the "A" IRM, reset the "A" side half scram and continue the startup

ANSWER : A

Reference: #41

NO.: 275 REV.: 2 TYPE: MC ENTERED BY: DCW DATE ENTERED: 12/06/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001A1.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: A

QUESTION :

All of the following require initiation of a Temporary Change (TC) to a procedure EXCEPT:

a. S54.1.A incorrectly lists HS-054-*10 location as 00-C308 and it should be 00-C306.

b. S10.1.A (COL) incorrectly lists valve 10-1175B as OPN and it should be CLSD.

c. S12.1.A (COL) incorrectly lists "A" RHRSW PP DISCH. VLV as 12-0012A and it should be 12-0002A.

d. ST-6-107-590-2 incorrectly lists SLC tank level indicator as LI-48-2R603 and it should be LI-48-2R601.

ANSWER : A

Reference: 42

NO.: 143 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/18/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295031EA1.08 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: T200

QUESTION :

Which ONE of the following describes the systems used for Unit 2 Alternate Injection in T-111 for T-244, Firewater?

a. 2A RHR Loop and Backup Diesel Driven Fire Pump

b. 2B RHR Loop and Motor Driven Fire Pump

c. 2A RHR Loop and Portable Diesel Generator

d. 2B RHR Loop and Diesel Driven Fire Pump

ANSWER : A

ference: 43

NO.: 191 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295037EK1.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: TRIP T-117

QUESTION :

T-117 directs the lowering of RPV level under certain conditions.

Which ONE of the following explains why we reduce RPV level?

a. To increase neutron leakage from the core

b. To maintain boron concentration in the core

c. To inhibit natural circulation in the core

d. To provide a reduction in subcooling of feedwater

`NSWER : C

Reference: #44

NO.: 214 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 215005A2.05 TAXONOMY NO.:
LESSON PLANS: LOT0270.11C
:
CATEGORY: 96
SYSTEMS: APRM

QUESTION :

Which ONE of the following will be affected by a recirc flow trip unit "COMPARATOR TRIP"?

a. RBM

b. APRM

c. APRM and RBM

d. RWM

ANSWER : B

.ference: #45

NO.: 157 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11,22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295014AA1.07 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OT-104

QUESTION :

Unit 2 is in OPCON 1 at 95% power. The #4 Turbine Control Valve mechanically fails closed. Complete the following:

"Reactor power will stablize at a ________________."

a. higher value due to a rise in reactor pressure

b. higher value due to lowering FW temperature

c. lower value due to a rise in FW temperature

d. lower value due to lowering reactor pressure

SWER : B

Reference: 46

NO.: 230 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001A1.11 TAXONOMY NO.:
LESSON PLANS: LOT1570.17
:
CATEGORY: 96
SYSTEMS: A

QUESTION :

A PRO is required to verify the status of a Temporary Plant Alteration (TPA). Select the location below where the ECR and attachments for an active TPA can be referenced.

a. Any PIMS terminal

b. SM/S.O.A. office files

c. Station library

d. System Manager's System Notebook

SWER : B

Reference: 47

NO.: 159 REV.: 6 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295014AA2.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: GP

QUESTION :

Unit 1 is in OPCON 2

Reactor is subcritical at 1.5×10^4 cps

Coolant temperature is 191°F

Rod 30-51 is in sequence rod at position 08 and will be withdrawn to position 10

ESTIMATED CRITICAL POSITIONS sheet is provided (Question 48 reference)

ter a single notch withdrawal signal is applied to rod 30-51 the llowing indications exist:

Reactor period is sustained at 25 seconds, with SHORT PERIOD annunciator

A and B SRM indicate 8×10^4 cps

C and D SRM indicate 1.6×10^4 cps

Rod 30-51 indicates "12" on 4 rod display

Which ONE of the following describes action to be taken?

a. No action, this is normal "prompt jump" on rod withdrawal near criticality

b. Single rod scram rod 30-51 due to "double notching" of the control rod

c. Immediately insert rod 30-51 to position 08 to mitigate the "short period" condition

d. No action, this is an expected response for a "high notch worth" condition

SWER : C

Reference: 48

NO.: 173 REV.: 4 TYPE: MC ENTERED BY: DCW DATE ENTERED: 11/25/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295025EK2.04 TAXONOMY NO.:
LESSON PLANS: LOT0315.04
:
CATEGORY: 96
SYSTEMS: RRCS RECIRC

QUESTION :

What action, given below, should be taken for the conditions given:

ADS SRVs are open with handswitches in AUTO

HV59-129A and HV59-129B, PCIG to Drywell, have been shut due to a PCIG rupture.

All rods in

RPV level -18" and rising

RPV pressure 1210 psig

A Recirc pump at minimum speed

B Recirc pump tripped

a. Manually initiate RRCS using manual pbs

b. RAISE EHC Pressure Setpoint

c. OPEN A, B, C SRVs with the handswitch

d. TRIP the A Recirc Pump

ANSWER : D

Reference: 49

NO.: 153 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295009AA2.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OT-100

QUESTION :

Unit 1 is at 35% power, the "1B" Main Steam Line flow transmitter fails upscale. Which ONE of the statements below describes the result on reactor level?

a. Increase and cause a turbine trip

b. Increase and stabilize below +54"

c. Decrease and cause a recirc runback

d. Decrease and stabilize above +27.5"

NSWER : B

Reference: 50

NO.: 240 REV.: 3 TYPE: MC ENTERED BY: PMO DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 223001K4.04 TAXONOMY NO.:
LESSON PLANS: LOT0140.03
:
CATEGORY: 96
SYSTEMS: DWVENT

QUESTION :

The fans in the table below are run for 15 minutes per ST-6-077-310-1 "Drywell Unit Cooler Hydrogen Mixing System Operability Test Run".

FAN NUMBER	DESCRIPTION
1A1V212	"A1 Drywell Unit Cooler Fan" (A1)
1A2V212	"A2 Drywell Unit Cooler Fan" (A2)
1B1V212	"B1 Drywell Unit Cooler Fan" (B1)
1B2V212	"B2 Drywell Unit Cooler Fan" (B2)
1G1V212	"G1 Drywell Unit Cooler Fan" (G1)
1G2V212	"G2 Drywell Unit Cooler Fan" (G2)
1H1V212	"H1 Drywell Unit Cooler Fan" (H1)
1H2V212	"H2 Drywell Unit Cooler Fan" (H2)

Which description below gives the correct number and combination of fans required?

a. Any four must run.

b. Eight (8) of eight (8) must run.

c. Four (4) of eight (8) must run; A2, B1, G1, H2 is a satisfactory combination.

d. Six (6) of eight (8) must run; A1 or A2 and B1 or B2 with any other four (4) fans in a satisfactory combination.

ANSWER : C

Reference: 51

NOTE: Remove this section of T.S.

NO.: 226 REV.: 4 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 290001K6.01 TAXONOMY NO.:
LESSON PLANS: LOT0190.08A
:
CATEGORY: 96
SYSTEMS: REHVAC

QUESTION :

During July, Unit 1 Reactor Enclosure (RE) ventilation is in service. A control problem causes the six (6) "face dampers" to OPEN and two (2) "bypass dampers" to CLOSE.

What effect will this ventilation situation have on secondary containment?

a. Zone 3 temperature will rise causing T-103 entry conditions

b. Cooling coil drywell chilled water will isolate to high air flow

c. RE exhaust fan blade pitch will be signalled to "MINIMUM"

d. RE d/P will get less negative (closer to zero)

ANSWER : D

Reference: 52

NO.: 129 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/18/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001A1.04 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: SE

QUESTION :

A Unit 1 Division 4 LOCA signal has occurred and NO operator actions were taken. All of the following are available, EXCEPT:

a. ENS (FTS-2000 Network - NRC phone)

b. Prelude and Meridian systems

c. Plant Public Address system (PPA)

d. Radio system

ANSWER : C

Reference: #53

NO.: 259 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 262001A4.03 TAXONOMY NO.:
LESSON PLANS: LOT0660.05C
:
CATEGORY: 96
SYSTEMS: 4KV

QUESTION :

During performance of a clearance restoration IVOR for the 2A CRD pump, 4KV breaker installed, the EO reports that the breaker is in the connected position but, the red TRIP pushbutton is in the FULL-IN position.

Which ONE of the following describes the cause AND effect of this breaker condition?

a. The position cell switches have not been made up. The breaker will not respond to close signals.

b. The unlocking lever has not been returned to its normal full-down position. The breaker will not close.

c. The charging springs motor toggle switch is "OFF". The closing springs must be manually charged to close the breaker.

d. The DC control fuses were NOT installed prior to rack-in. Breaker will only respond to local breaker test switch.

ANSWER : B

Reference: 54

NO.: 210 REV.: 3 TYPE: MC ENTERED BY: RTR DATE ENTERED: 12/04/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 211000A1.07 TAXONOMY NO.:
LESSON PLANS: LOT0310.06
:
CATEGORY: 96
SYSTEMS: RRCS SLC

QUESTION :

An EHC malfunction has resulted in a reactor pressure of 1080 psig. Reactor power is 100% and all other parameters are normal. Which ONE of the following will cause an IMMEDIATE drop in reactor power?

a. Arm and depress both the A1 and A2 RPS Scram pushbuttons.

b. Arm and depress a single DIVISION I and a single DIVISION 2 RRCS manual pushbutton.

c. Manually start the "A" SLC pump from the C603 panel handswitch.

d. Manually start the "A" SLC pump from the local "TEST" control switch.

ANSWER : C

Reference: #55

NO.: 233 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295022AK2.03 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: CRDH

QUESTION :

Which ONE of the following statements describes the effects of a CRD pump trip at 100% power?

a. Reactor pressure will maintain control rod scram accumulators at their present pressures and rods will still scram

b. Any control rod with scram accumulator pressure less than 955 psig will still scram if a valid scram signal is received

c. Any control rod with a scram accumulator pressure less than reactor pressure will drift in

d. Any control rod scram accumulators which depressurize to 0 psig will prevent the associated rod from scramming

ANSWER : B

Reference: 56

NO.: 175 REV.: 2 TYPE: MC ENTERED BY: DCW DATE ENTERED: 11/25/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001A1.09 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OM

QUESTION :

All of the following describe testing conditions where MCR Operators can grant permission to non-operator personnel to acknowledge and reset MCR annunciators EXCEPT?

a. HCU testing which actuates ACCUMULATOR TROUBLE alarms

b. SLC Tank level transmitter testing which actuates HI/LO TANK LEVEL alarms.

c. RDCS testing which actuates RDCS INOPERATIVE alarms

d. APRM testing which actuates NEUTRON MONITORING SYSTEM TRIP alarms.

ANSWER : D

Reference: #57

NO.: 263 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295002AK2.08 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: CIRC

QUESTION :

All of the following will result in dropping Main Condenser vacuum, EXCEPT:

a. Opening all Main Condenser circ water waterbox vacuum vent valves simultaneously

b. A cooling tower de-icing segment slot valve fails to close with tower de-icing in automatic operation

c. Cooling tower outlet weir debris screens high differential level due to biological growth

d. Leaking of condensate makeup to vacuum breaker valve's overflow drain to dirty radwaste

ANSWER : B

Reference: 58

NO.: 99 REV.: 1 TYPE: MC ENTERED BY: PMO DATE ENTERED: 11/14/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295001AK3.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: RECIRC HSO H2COOL

QUESTION :

Unit 2 is at 50% power. A GP-3 shutdown is in progress due to a failure of the main seal oil pump. The Emergency seal oil pump is operating at reduced discharge pressure. Hydrogen pressure in the generator is 55 psig and slowly dropping. Which ONE of the following describes expected plant response if NO further operator actions are taken?

a. The main generator will automatically trip on low hydrogen pressure.

b. The "A" recirc pump will trip and bypass valves will open. Generator load set will run back.

c. At 14 psig hydrogen pressure, air in-leakage to the generator will result in a combustible mixture in the generator casing.

d. The main turbine oil system will automatically back up the seal oil system and maintain generator gas pressure at 50 psig.

ANSWER : B
Reference: #59

NO.: 235 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 215002A3.04 TAXONOMY NO.:
LESSON PLANS: LOT0280.08
:
CATEGORY: 96
SYSTEMS: RBM

QUESTION :

Unit 1 is at 97% power. Rod 23-14 is selected and at position 48. Power is reduced using Recirc Flow to mitigate a back pressure problem.

Which ONE of the following describes a properly functioning Rod Block Monitor (RBM)?

a. UPSC trip, insert and withdrawal block, "B" RBM indicates 112%

b. Downscale alarm, no insert or withdrawal blocks generated

c. Upscale alarm, no withdrawal block, "A" RBM indicates 95%

d. DNSC trip results in withdrawal block, "A" RBM indicates 91%

ANSWER : D

Reference: 60

NO.: 205 REV.: 4 TYPE: MC ENTERED BY: DCW DATE ENTERED: 12/01/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295018AK3.04 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: RECW

QUESTION :

Given the following conditions for Unit 1:

47% power
1A RECIRC PUMP SEAL COOLING WATER LO FLOW ALARM
1B RECIRC PUMP SEAL COOLING WATER LO FLOW ALARM
1A DRYWELL INSTR GAS TROUBLE ALARM
1B DRYWELL INSTR GAS TROUBLE ALARM
REAC ENCL COOLING WATER HTX OUT LO PRESS ALARM
1A RECW Pump red light lit, green light out
1B RECW Pump green light lit, red light out
RECW Hx Outlet temperature (TI13-105) 68°F
RECW Hx Outlet pressure (PI-13-108) 79 psig

W t action should be taken to correct the problem indicated?

a. Manually start 1B RECW Pump

b. Align ESW to cool the RECW heat exchangers

c. Ensure Service Water properly aligned to both RECW heat exchangers

d. Restore RECW to PCIG compressor by bypassing the Group 8A (DCWS/RECW) isolation

ANSWER : A

Reference: 61

NO.: 196 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001K1.07 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OM

QUESTION :

Complete the following statement.

"In order to reset and close a circuit breaker which has tripped on thermals,

a. the cause of the trip is thought to be known and been corrected."

b. an inspection of the associated equipment is required."

c. the CRS shall document the actuation and actions initiated."

d. it must be reset prior to shift turnover."

ANSWER : A

Reference: 62

NO.: 276 REV.: 4 TYPE: MC ENTERED BY: WMT DATE ENTERED: 12/06/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS:

QUESTION :

Given the following:

2A Instrument Air Compressor is in AUTO

2B Instrument Air Compressor is in AUTO

Unit 2 Service Air Compressor is in AUTO

Service Air to Instrument Air crosstie is aligned to backup the "B" Instrument Air Header.

Backup Service Air Compressor is in AUTO and selected to Unit 1.

The feed for 2A Instrument Air Compressor has tripped open.

2B Instrument Air Dryer has isolated.

Instrument Air pressure indications for A and B headers are dropping.

Which ONE of the following describes how the Service Air System responds?

a. Service air will automatically backup and repressurize B header when 2B receiver pressure drops to 70 psig.

b. Service Air to Instrument Air crosstie must be manually aligned to "A" instrument air header.

c. Backup Service Air Compressor will automatically align to backup and repressurize 2B Instrument Air Header.

d. Service Air will isolate and dedicate its output to the service air header when either 2A or 2B receivers pressure drops to 70 psig.

ANSWER : B

Reference: 63

NO.: 216 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295020AK3.06 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: DEOX

QUESTION :

Unit 2 is in OPCON 4 with Suppression Pool cleanup and the DEOX skid in service. Which ONE of the following describes plant response to an inadvertent isolation signal causing closure of Suppression Pool Cleanup Suction valves?

a. Suppression Pool Cleanup Pump trips and Suppression Pool water level will go up.

b. Suppression Pool Cleanup Pump trips and Suppression Pool level remains the same.

c. Suppression Pool Cleanup Pump continues to run and Suppression Pool water level will go down.

d. Suppression Pool Cleanup Pump continues to run and Suppression Pool water level remains the same.

ANSWER : A

Reference: 64

NO.: 158 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295008AK3.01 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: MT FWLC

QUESTION :

Unit 2 is in OPCON 1 with the following conditions:

Reactor Power 39%
FWLC Master Controller in AUTO 3 element control
"B" Narrow Range level transmitter output failed LOW (LT-C32-N004B)
IC work is in progress ("A" NR is selected)

Which ONE of the following describes what will happen if the "A" Narrow Range level transmitter output fails LOW under these conditions? Assume no operator actions are taken.

a. RPV level increases, main turbine trips and reactor scrams

b. RPV level decreases, reactor scrams on low level

c. RPV level increases, main turbine fails to trip

d. RPV level decreases to a lower level above the scram setpoint

ANSWER : C

Reference: #65

NO.: 227 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295012AK2.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OT DCWS

QUESTION :

Given the following on Unit 2:

Drywell Temperature 133°F
Drywell Pressure 0.7 psig
2A DCWS Pump in RUN, 2B DCWS Pump in AUTO
2A Chiller in RUN, 2B Chiller in OFF
A Loop in service, B Loop secured and available

All of the following actions should be taken <u>EXCEPT</u>:

a. Place 2B DCWS Pump in RUN

b. Place 2B Chiller in RUN

c. Shut HV-57-116 N_2 Makeup Supply

d. Open supply and return valves for "B" Loop of DCWS

ANSWER : B

Reference: 66

NO.: 215 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001K1.02 TAXONOMY NO.:
LESSON PLANS: C&TM 4.2.9
:
CATEGORY: 96
SYSTEMS: C&T

QUESTION :

When an information tag is hung on a component with the AS APPLD POS "AFI" (applied for information), then:

a. The position code "TAGGED" should be used if applied to control stations.

b. The component position must be specified by another INFO, SCT or DANGER TAG applied to the component.

c. A brief description of the component status should be provided on the Information Tag.

d. The required component position prior to restoration of the equipment's energy source must be provided on the tag.

ANSWER : C

Reference: 67

NO.: 160 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295028 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: T-102

QUESTION :

A LOCA has occurred on Unit 1. The following conditions exist:

RPV level 17"
"C" and "D" RHR pumps injecting
DW pressure 25 psig
DW temperature 260°F
Suppression Pool pressure 24 psig
Suppression Pool level 40 feet and stable
"A" RHR is in Pool Spray Mode
"B" RHR is in Drywell Spray Mode

Which ONE of the following actions is required in response to the above conditions?

a. Enter T-112 "Emergency Blowdown"

b. Terminate Drywell sprays

c. Terminate Suppression Pool sprays

d. Vent the Containment per T-200

ANSWER : B

Reference: #68 T-102

NO.: 271 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295004AK1.06 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: DC

QUESTION :

Unit 2, DIVISION IV Safeguard DC Bus has been lost. Prior to restoring the 2FD Bus Power, which ONE of the following must have their feed opened to prevent inadvertent isolation?

a. RWCU Inboard Isolation Valve, HV-44-2F001

b. RWCU Dump Flow Control Valve, HV-C-44-2F033

c. RWCU Outboard Isolation Valve, HV-44-2F004

d. RWCU Discharge to Main Condenser Valve, HV-44-2F034

SWER : C

Reference: 69

NO.: 163 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295629EK1.01 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: T-102

QUESTION :

All of the following describe concerns associated with high Suppression Pool level EXCEPT:

a. Suppression Pool Vent Path operation could be impaired

b. Drywell Vacuum breaker operation could be impaired

c. Heat capacity temperature limit of the pool could be exceeded

d. Design limits of the pool could be exceeded if an SRV lifts

ANSWER : C

Reference: #70

NO.: 154 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295033SG11 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: T-103

QUESTION

Unit 2 is at 75% power. Which ONE of the following conditions require immediate entry into T-103, "Secondary Containment Control"?

a. 2.0 mr/hr Refuel Floor HVAC Isolation Signal

b. Control Enclosure Steam Flooding Damper Actuation

c. North Stack Hi Hi Radiation Alarm Condition

d. Valid Main Steam Line High Radiation Alarm

ANSWER : D

Reference: #71

NO.: 236 REV.: 4 TYPE: MC ENTERED BY: WMT DATE ENTERED: 12/06/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295034EK2.01 TAXONOMY NO.:
LESSON PLANS: LOT0710.04
:
CATEGORY: 96
SYSTEMS: PRM

QUESTION :

Unit 2 is in OPCON 1 with fuel movements in progress in the spent fuel pool. Unit 2 Refuel Floor Ventilation is in service. Radwaste personnel move radioactive material with a dose rate of 3 mr/hr near the Unit 1 Refuel Floor Ventilation Exhaust Radiation Monitors.

What is the effect of this condition on the plant?

a. Unit 2 Refuel Floor vent fans will trip after a 100 second time delay

b. These rad monitors provide alarm functions only, T-103 should be entered and executed by the crew

c. SBGT will auto start and be aligned to draw down Secondary Containment Zone 3

d. No effect since Refuel Floor Unit 1 slide gate damper will be shut with Unit 2 Refuel Floor ventilation in service

ANSWER : C

Reference: 72

NO.: 238 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295018AK3.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: ON TECW

QUESTION :

Unit 2 is at 26% power with the following indications:

TECW HX OUTLET HI TEMP alarm
TECW HX OUTLET temp (TI-14-203) is 108°F
TECW HX OUTLET pressure (PI-14-206) is 60 psig

Which ONE of the following would improve conditions?

a. Trip the Backup Service Air Compressor and secure cooling to its after condenser

b. Secure operating 2B CRD pump and enter ON-107 until the alternate TECW pump is started

c. Start OC ESW pump and align its cooling flow to the inservice and alternate TECW heat exchangers

d. Transfer house loads, runback Recirc to minimum, scram and secure all condensate pumps

ANSWER : D

Reference: 73

NO.: 220 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295020AK2.02 TAXONOMY NO.:
LESSON PLANS: LOT0160.05
:
CATEGORY: 96
SYSTEMS: CASS

QUESTION :

An inadvertent isolation signal is generated and closes the following three valves for the 10S206 H_2/O_2 analyzer:

SV-57-133 Drywell Sample Point Isolation
SV-57-183 Suppression Pool Sample Point Isolation
SV-57-191 Analyzer Return Isolation

Complete the following statement:

"The 10S206 H_2/O_2 analyzer __________."

a. is inoperable

b. is operating normally

c. can be returned to service by selecting another sample point in the MCR

d. can be returned to service only by local manual valve realignment

ANSWER : A

Reference: 74

NO.: 272 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 26400K4.02 TAXONOMY NO.:
LESSON PLANS: LOT0670.05
:
CATEGORY: 96
SYSTEMS: EDG

QUESTION :

An inadvertent DIVISION I LOCA signal has occurred on Unit 2. The cause is under investigation and the LOCA signal is NOT reset. The D21 Emergency Diesel Generator is running. Under these conditions, which ONE of the following will cause the D21 EDG to trip?

a. Generator reverse power condition

b. Generator differential overcurrent condition

c. Generator ground neutral overcurrent condition

d. D21 4KV Safeguard Bus overcurrent condition

ANSWER : B

Reference: #75

NO.: 224 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 290002SG.04 TAXONOMY NO.:
LESSON PLANS: LOT0010.08
:
CATEGORY: 96
SYSTEMS: RXVESS

QUESTION :

*** RO ONLY ***

Choose the ONE item below that completes the following concerning vessel construction:

"To remove a control rod blade from above vessel, the ________ must be removed first to allow removal of the _________."

a. fuel; double blade guide due to the top guide size

b. velocity limiter; drive mech (CRDM) due to the support housing

c. fuel support piece; blade due to the velocity limiter

d. guide tube; blade due to the stub tube

ANSWER : C

Reference: 76R

NO.: 278 REV.: 3 TYPE: MC ENTERED BY: DCW DATE ENTERED: 12/06/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 239001K4.09 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: MS

QUESTION :

*** RO ONLY ***

Which ONE of the following completes the statement below.

"The Main Turbine has to be reset prior to bypassing around and opening the MSIV's to prevent ____________."

a. excessive water hammer in the main steam lines

b. overpressurizing the main condenser via turbine drain system

c. a steam line high flow induced group one isolation signal

d. drawing a vacuum in the reactor pressure vessel

ANSWER : D

Reference: 77R

NO.: 195 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 215001A1.04 TAXONOMY NO.:
LESSON PLANS: LOT029C.09
:
CATEGORY: 96
SYSTEMS: TIP

QUESTION :

*** RO ONLY ***

During a TIP run, a Group 8B isolation is received. Complete the statement below.

"The TIP is withdrawn from the core in _______ speed, travels between the bottom of the core to the indexer in ________ speed, and is retracted into the shield in _________ speed."

a. slow;slow;slow

b. slow;fast;slow

c. fast;fast;slow

d. fast;fast;fast

ANSWER : B

Reference: 78R

NO.: 141 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/18/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295009SG.10 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OT COND

QUESTION :

*** RO ONLY ***

An EO reports that an electrical malfunction has caused five (5) Unit 1 Filter/Demin "E" valves to close. Reactor level is +33" and dropping slowly.

Which choice below describes the actions that should be taken for the conditions above?

a. Take manual control of Feedwater Level Control and restore level to normal.

b. Monitor RFP suction pressure and immediately trip RFP's if suction pressure falls to 280#.

c. Direct the EO to manually reopen the "E" valves that failed closed.

d. Reduce power per RMSI, monitor operation of HV-16-105 (Powdex bypass).

ANSWER : D

Reference: 79R

NO.: 161 REV.: 4 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295024SG.12 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: TRIP T-102

QUESTION :

*** RO ONLY ***

Which ONE of the following set of actions should be occurring for the below conditions:

RPV pressure 160 psig
RPV level -205 inches
Drywell pressure 63 psig
Drywell temperature 325°F
CST level 30 feet
Suppression Pool level is 24 feet
2B and 2D RHR are the only low pressure sources available

a. Utilize 2B and 2D RHR to restore RPV level -185" to -161" and vent primary containment per T-200

b. Spray the drywell with 2B RHR Pump and inject to the RPV with 2D RHR Pump

c. Prepare to vent Primary Containment, perform T-234 and T-235 and secure HPCI

d. Spray the drywell and Suppression Pool using the 2B and 2D RHR respectively

ANSWER : B

Reference: 80R, T-102 PC/P

NO.: 253 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295003.AK2.1 TAXONOMY NO.:
LESSON PLANS: LOT0690.07
:
CATEGORY: 96
SYSTEMS: DC

QUESTION :

*** RO ONLY ***

Unit 2 is at 55% power when offsite power is lost. Which ONE of the following describes the status of the Safeguard Batteries?

a. The DIV I and II Batteries will be maintained, but at reduced capacity

b. The DIV I and II Batteries will discharge until operator actions are taken to restore the chargers to service.

c. All Safeguard Batteries will continue to discharge until offsite power is restored

d. All Safeguard Batteries will be maintained at full charge regardless of offsite power availability

ANSWER : D

Reference: 81R

NO.: 98 REV.: 2 TYPE: MC ENTERED BY: PMO DATE ENTERED: 11/14/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295016AA1.04 TAXONOMY NO.:
LESSON PLANS: LOT
:
CATEGORY: 96
SYSTEMS: RSP 4KV

QUESTION :

*** RO ONLY ***

A fire in the MCR has resulted in the shift taking control of both units from the RSP. All Emergency Transfer Switches are in the "EMERGENCY" position. The "Diesel 11 Bus Energized" white light is lit, the 101 and 201 Safeguard feeder breakers are green flagged and their respective green lights are lit. Which ONE completes the following statement?

"If the operator takes the 101 Feed Breaker to Close ______"

a. the breaker will close and the D11 DG output breaker will trip open.

b. the breaker will close and the D11 DG will try to carry the grid.

c. the breaker will NOT close and the D11 DG output breaker will trip open.

d. the breaker will NOT close, 4KV interlocks prevent closure of more than one feed at a time.

ANSWER : D

Reference: #82R

NO.: 260 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 201003K4.06 TAXONOMY NO.:
LESSON PLANS: LOT0060.04
:
CATEGORY: 96
SYSTEMS: CRDM

QUESTIO

*** RO ONLY ***

Complete the following concerning uncoupling a control rod from the drive mechanism:

"The control rod can be uncoupled from _______. Indication of the rod being uncoupled is _______."

a. the MCR only; "XX" on 4-rod display

b. either above or under vessel; ROD OVERTRAVEL alarm

c. under vessel only; reed switch "52" actuated for FULL IN

d. above vessel only; reed switch "49" actuated for FULL OUT

ANSWER : B

Reference: 83R

NO.: 279 REV.: 2 TYPE: MC ENTERED BY: DCW DATE ENTERED: 12/06/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 245000K6.10 TAXONOMY NO.:
LESSON PLANS: LOT0570.06
:
CATEGORY: 96
SYSTEMS: MTLO

QUESTION :

Which ONE of the choices below complete the following statement?

"The Turning Gear Oil Pump (TGOP) will automatically start if its handswitch is in AUTO and low ______________ is present".

a. Motor Suction Pump suction pressure

b. Bearing header oil pressure

c. Oil Driven Booster Pump discharge pressure

d. Bearing Lift Pump discharge pressure

ANSWER : B
Reference: 84R

NO.: 237 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 202002K1.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: RECIRC

QUESTION :

*** RO ONLY ***

Unit 2 is at 78% power with recirc pump speeds at 62%. A loose mechanical connection results in the scoop tube positioner failing to the minimum fluid coupling position (5' position).

Which ONE of the following describes the FINAL effect on plant parameters?

a. Reactor power will be lower

b. Turbine inlet pressure will be lower

c. Recirc pump motor air cooler outlet temp will be higher

d. Hotwell level will be higher

ANSWER : A

Reference: 85R

NO.: 242 REV.: 2 TYPE: MC ENTERED BY: PMO DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 230000K4.03 TAXONOMY NO.:
LESSON PLANS: LOT0370.09B
:
CATEGORY: 96
SYSTEMS: RHR

QUESTION :

Unit 2 is shutdown with 8 psig in the Suppression Pool. Suppression Pool Spray is in service when reactor pressure drops below 455 psig. Complete the following statement:

"Suppression Pool Spray ________________."

a. isolates and can be realigned immediately

b. isolates and cannot be realigned immediately

c. remains in service and must be manually secured

d. remains in service and must be throttled to prevent runout

ANSWER : A

Reference: 86R

NO.: 280 REV.: 2 TYPE: MC ENTERED BY: DCW DATE ENTERED: 12/06/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 259001A2.03 TAXONOMY NO.:
LESSON PLANS: LOT0540.14B
:
CATEGORY: 96
SYSTEMS: FW

QUESTION :

*** RO ONLY ***

Reactor power is 75% when "1C" Condensate pump trips. Which ONE of the following design features acts to maintain Reactor Feed Pump suction pressure?

a. Recirc pump runback

b. Immediate trip of "1A" Reactor Feed Pump

c. Reactor Feed Pump speed limit of 78% speed

d. Condensate Min Flow and Condensate Reject automatic closure

.SWER : C
Reference: 87R

NO.: 243 REV.: 2 TYPE: MC ENTERED BY: PMO DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 219000A2.06 TAXONOMY NO.:
LESSON PLANS: LOT0370.03C
:
CATEGORY: 96
SYSTEMS: RHR

QUESTION :

"1B" RHR is in Suppression Pool Cooling when Div 2 Safeguard DC Bus is deenergized.

Given the above condition, which ONE of the following describes the effect of a LOCA signal on "1B" RHR Loop?

a. "1B" RHR loop will realign to the LPCI mode.

b. "1B" RHR loop will remain in Suppression Pool Cooling.

c. "1B" RHR will load shed and remain shutdown.

d. "1B" RHR pump will continue to run, Pool Cooling is isolated.

ANSWER : B

Reference: 88R

NO.: 156 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 245000A4.07 TAXONOMY NO.:
LESSON PLANS: LOT0560.07
:
CATEGORY: 96
SYSTEMS: MT

QUESTION :

*** RO ONLY ***

A Main Turbine Startup is in progress.

Which ONE of the following describes the opening sequence involved with the Main Turbine Intercept Valves (IV)?

a. All 6 of the IV's ramp open at the same time

b. When IV 3 reaches full open, then IV 4 will start to open

c. When IV 1 reaches full open, then IV 4 will start to open

d. When IV 1, 2 and 3 are full open, then IV 4, 5 and 6 start to open

ANSWER : C

Reference: 89R

NOTE: Masters are IV 1, 3, 5 and slaves are 4, 2, 6 respectively.

NO.: 264 REV.: 2 TYPE: MC ENTERED BY: WMT DATE ENTERED: 12/06/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 223002K3.10 TAXONOMY NO.:
LESSON PLANS: LOT0180.06H
:
CATEGORY: 96
SYSTEMS: NSSSS RWCU

QUESTION :

*** RO ONLY ***

During Unit 1 plant startup, TE-44-1N016T, DIV I Steam Leak Detection element for the "1B" RWCU pump fails to 180°F. The "1B" RWCU pump is not in service and has been isolated for two days. Complete the following:

"The HV-44-1F001 valve will ______ and the HV-44-1F004 valve will ______."

a. remain open/remain open

b. remain open/close

c. close/remain open

d. close/close

ANSWER : C

Reference: 90R

NO.: 217 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 261000A4.02 TAXONOMY NO.:
LESSON PLANS: LOT0733.05
:
CATEGORY: 96
SYSTEMS: FP

QUESTION :

*** RO ONLY ***

The "SGTS Charcoal Filter A Fire" annunciator alarms. Temperature on the A SGTS Filter is verified at 550°F at to 00C681 panel. Complete the following statement:

"Fire Protection ____________________________."

a. has already actuated.

b. will actuate at 600°F.

c. has failed to actuate.

d. must be manually actuated.

ANSWER : D

Reference: 91R

NO.: 261 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 264000A3.06 TAXONOMY NO.:
LESSON PLANS: LOT0680.06
:
CATEGORY: 96
SYSTEMS: ESW

QUESTION :

*** RO ONLY ***

You are starting the D23 Emergency Diesel Generator for monthly surveillance. Which ONE of the following is an expected automatic action by the time the diesel is electrically loaded?

a. HPCI Room Cooler Service Water return will be aligned to the Spray Pond

b. Pond spray will commence if SPRAY/BYPASS select switch HSS-12-016C is in "SPRAY"

c. ESW supply and returns will swap to the cooling tower if AUTO VLV LINEUP BYPASS (brass keylock HSS-12-019C) is in "BYPASS"

d. Series AOV's associated with 2C Core Spray Room cooling open, parallel AOV's close to align room cooling

ANSWER : B

Reference: 92R

NO.: 203 REV.: 5 TYPE: MC ENTERED BY. MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 223001A4.10 TAXONOMY NO.:
LESSON PLANS: LOT0160.05
:
CATEGORY: 96
SYSTEMS: CAC

QUESTION :

*** RO ONLY ***

Which ONE of the following describes why the 20S206 H_2/O_2 analyzer must be secured prior to adding N_2 to the Drywell?

a. The N_2 flow may damage the thermal conductivity cells.

b. Reverse N_2 flow may damage the sample pump.

c. To prevent a potential release path to the N_2 skid.

d. To ensure containment isolation is complete.

SWER : D

Reference: 93R

NO.: 232 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 223001K6.01 TAXONOMY NO.:
LESSON PLANS: LOT0150.06D
:
CATEGORY: 96
SYSTEMS: DCWS

QUESTION :

*** RO ONLY ***

Unit is at 27% power when a blown NSSSS fuse results in an INBOARD Drywell Chilled Water isolation.

How does the DCWS response affect drywell conditions?

a. Both chilled water pumps will trip on low flow, drywell temperature and pressure will rise

b. Both chilled water loops will isolate, drywell temperature and pressure will rise

c. Slight rise in drywell temperature and pressure as the "A" loop of chilled water isolates with the "B" loop remaining in service

d. Drywell chiller will trip on low d/p, drywell temperature will be uneffected due to circulation of chilled water

ANSWER : B

Reference: 94R

NO.: 149 REV.: 4 TYPE: MC ENTERED BY: DCW DATE ENTERED: 11/20/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295021AA1.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: RHR SDC ON

QUESTION :

*** RO ONLY ***

Unit 1 is in OPCON 4

Coolant temp is 95'F

"B" loop of SDC is in service

SDC flowrate and plant cooldown rate is being controlled by HV-C-51-103B "RHR Heat Exchanger Outlet Bypass" valve using Bailey Controller HIC-51-103B (POS) at 60% open.

HV-51-1F048 is full shut

A panel walkdown later in the shift uncovers that HV-C-51-103B is now full SHUT.

Which ONE of the following identifies a plant monitoring problem you now face?

a. Coolant temperature indication from the SDC flowpath is inaccurate.

b. Cooldown rate monitoring point must be swapped to RHR pump suction.

c. SDC flowrate for coolant returned to the vessel is conservatively indicating high.

d. RPV level is conservatively low due to the reduction of fluid velocity in the downcomer region.

ANSWER : A

Reference: 95R

NO.: 145 REV.: 5 TYPE: MC ENTERED BY: DCW DATE ENTERED: 11/20/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295035EK1.01 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: ON

QUESTION :

*** RO ONLY ***

While in "STARTUP" at 460 psig, which ONE of the following is an entry condition to ON-111, Loss OF SECONDARY CONTAINMENT?

a. 313' elevation Reactor Enclosure to Fan Room inner door is open. NO MCR annunciator.

b. SGTS Zone 1 Integrity Test, gives all d/p readings -0.21 in. wc with an average flow of 1265 cfm.

c. Reactor cavity seals #3 and #4 are found at a pressure less than 5 psig.

d. SGTS Zone 3 Integrity Test, gives all d/p readings at -0.31 in wc with an average flow of 720 cfm.

ANSWER : B

Reference: 96R

NO.: 202 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295032EK2.01 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: T-103

QUESTION :

*** RO ONLY ***

EDG D22 monthly operability run is underway with "B" ESW pump running and 11-2013 valve closed. Unit 2 enters T-103 due to Unit Cooler High Temperature Alarm for RCIC area at 122°F.

Which ONE of the following actions is required to restore RCIC area cooling?

a. Start "A" ESW pump

b. Start "D" ESW pump

c. Start Standby RCIC Area Unit Cooler

d. Open 11-1013 from Unit 1 Service Water

ANSWER : A

Reference: 97R

NO.: 206 REV.: 2 TYPE: MC ENTERED BY: DCW DATE ENTERED: 12/01/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295036EK3.04 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: T-103

QUESTION :

*** RO ONLY ***

Which ONE of the following describes the T-236 procedure method to prevent the transfer of highly radioactive water from Secondary Containment to the Radwaste Enclosure during an accident.

a. RE Floor Drain sump discharge is directed to the Suppression Pool via "A" Core Spray Pump suction.

b. Drywell Floor Drains are directed to the Suppression Pool via Drywell Floor Drain Sump overflow isolation valve.

c. RE Equipment Drain Sump discharge is directed to the Equipment Drain Collection Tank.

d. Drywell equipment drain line to Radwaste Enclosure Equipment Drain Collecting Tank is isolated.

ANSWER : A

Reference: 98R

NO.: 234   REV.: 1   TYPE: MC   ENTERED BY: MGR   DATE ENTERED: 12/03/96
DIFFICULTY: 0   POINT VALUE: 1.0   RESPONSE TIME: 0   DRAWING:
TASK NUMBER: SKA NO.: 295030EK3.07   TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: T-102

QUESTION :

*** RO ONLY ***

During a LOCA, with HPCI injecting and its suction from the Suppression Pool, Suppression Pool level drops to 17 feet and the CRS directs you to secure HPCI regardless of core cooling.

Which ONE of the following is the reason for securing HPCI?

a. To prevent uncovering HPCI exhaust, causing a direct threat to containment by direct pressurization

b. To prevent uncovering HPCI suction, causing damage to the pump by drawing in "air"

c. To preserve the ability to depressurize the reactor within containment

d. To prevent damage to RHR and Core Spray pumps by operating on the unsafe side of NPSH and Vortex Limit curves

ANSWER : A

Reference: 99R

NO.: 155 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295038 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: TRIP T-104

QUESTION :

*** RO ONLY ***

T-104, "Radioactivity Release Control", has been entered due to North Stack Hi Hi Rad Alarm. T-104 directs TE HVAC to be restarted if shutdown.

Which ONE of the following is a basis for this action?

a. Delay radioactivity release

b. Ensure MCR habitability

c. Prevent radioactivity release

d. Permit personnel access

ANSWER : D

Reference: 100R

Initial Submission
Written SRO

1996 LGS
WRITTEN EXAMINATION
NRC INITIAL EXAM

					Plant Generics		Plant Systems						Emergency/Abnormal Evolutions				
							Group 1		Group 2		Group 3		Group 1		Group 2		Group 3
					13%	17%	28%	23%	19%	13%	4%	4%	13%	26%	19%	17%	4%
Q#	Topic	Reference	K&A		RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO
1	Recirc	0040.04	202001 K6.07	3.3					187	187							
2	Instrum.	0050.09	216000 K3.07	3.9			169	169									
3	CRDH	0070.04	201001 K1.09	3.1			257			257							
4	RDCS	0080.06	201002 K4.02	3.5			192			192							
5	RWCU	0110.06b	204000 A2.01	3.2					199	199							
6	SRM	0240.07	215004 K3.02	3.4			103	103									
7	ADS	0330.03f	218000 K2.01	3.1			131	131									
8	HPCI	0340.15	206000 A1.06	3.7			219	219									
9	LPCI	0370.08g	203000 K4.10	3.9			223	223									
10	RPS	0300.04	212000 K4.12	3.9			252	252									
11	RCIC	0380.08	217000 A4.02	3.9			262	262									
12	CAT	C&TM 3.4.3	294001 K1.02	4.5	209	209											
13	CE HVAC	0450.09	290003 A3.01	3.3					231	231							
14	SSE	0495.06	245000 K6.01	2.8					207	207							
15	OG	0510.09	271000 K3.02	3.3					266	266							
16	Elect. Sfty.	IS&H 3-9	294001 K1.07	3.6	229	229											
17	MN/AUX PWR	0640.02	262001 A2.06	2.7				274	274								
18	RHRSW	0400.05	203000 K4.13	3.7			222	222									
19	Confined Space	IS&H 3-1	294001 K1.14	3.4	256	256											
20	NSSSS	0180.02	223002 K1.10	3.1			218	218									
21	CORE SPRAY	0350.11	209000 A1.07	3.0			102	102									
22S	UPS/TS	TS 3.8.4.3	262002 SG.11	3.8						167							
22R	FPC	0750.03	233000 K1.02	2.9							258						
23	High Energy	CATM 6.1	294001 K1.09	3.8	213	213											
24	FWLCS	0550.04	259002 K3.01	3.8			170	170									
25	IRM	0250.09	215003 K4.02	4.0			101			101							
					4	4	14	12	6	9	1	0	0	0	0	0	0

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A070

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WRITTEN EXAMINATION
NRC INITIAL EXAM

					Plant Generics		Plant Systems						Emergency/Abnormal Evolutions				
							Group 1		Group 2		Group 3		Group 1		Group 2		Group 3
					13%	17%	28%	23%	19%	13%	4%	4%	13%	26%	19%	17%	4%
Q#	Topic	Reference	K&A		RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO
26	Recirc	0030.06	202001 A2.10	3.5					188	188							
27	RWM	0095.03	201006 A3.01	3.1					193	193							
28	Pri. Cont	0130.09	223001 A1.07	3.2			265	265									
29	Rad Pro	HP-C-106	294001 K1.03	3.8	228	228											
30	EHC Logic	0590.04	241000 A1.01	3.8			211	211									
31	DW Spray	0370.09	226001 K4.12	2.9				221	221								
32	AIR/EA	OT 105	295015 AK2.11	3.7									212	212			
33	IVOR/DVOR	OM-C-11.1/2	294001 K1.01	3.7	100	100											
34	480 VAC	0650.04	262001 K4.03	3.1				208	208								
35	LPRM	0260.11	215005 K3.07	3.2			190	190									
36	SPDS/EA	T 100	295006 AA2.05	4.6									142	142			
37	Work Hours	A-40	294001 A1.03	3.7	128	128											
38	SDC	0370.09d	205000 K4.02	3.7					241	241							
39	DCWS	OT 101	295010 AK3.02	3.4									162	162			
40	MSIV/EA	OT 102	295007 SG.11	4.1									168	168			
41	RPS/EA	OT 117	295015 AK2.04	4.0									189	189			
42	Temp Change	A-3	294001 A1.02	4.2	275	275											
43	Fire Pro./EA	T 111	295031 EA1.08	3.8									143	143			
44	ATWS/EA	T 117	295037 EK1.02	4.1									191	191			
45	APRM	0270.11c	215005 A2.05	3.5			214	214									
46	FWH-EHC/EA	OT 104	295014 AA1.07	4.0									157	157			
47	TPA	MOD-C-7	294001 A1.11	4.3	230	230											
48	Short Per./EA	GP-2	295014 AA2.02	3.9									159	159			
49	RPT/EA	0315.04	295025 EK2.04	3.9									173	173			
50	FWLCS/EA	OT 100	295009 AA2.02	3.6									153	153			
					5	5	4	6	5	3	0	0	11	11	0	0	0

1996 LGS
WRITTEN EXAMINATION
NRC INITIAL EXAM

					Plant Generics		Plant Systems						Emergency/Abnormal Evolutions				
							Group 1		Group 2		Group 3		Group 1		Group 2		Group 3
					13%	17%	28%	23%	19%	13%	4%	4%	13%	26%	19%	17%	4%
Q#	Topic	Reference	K&A		RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO
51	DW Vent.	0140.03	223001 K4.04	3.5			240	240									
52	RE Vent	0190.08a	290001 K6.01	3.5				226	226								
53	Communications	OM-C-4.1	294001 A1.04	3.2	129	129											
54	4KV	0660.05c	262001 A4.03	3.2				259	259								
55	SBLC	0310.06	211000 A1.07	4.3			210	210									
56	CRD/EA	ON 107	295022 AK2.03	3.4											233	233	
57	MCR Alarms	OM-C-7.1	294001 A1.09	4.2	175	175											
58	CIRC WTR/EA	OT 116	295002 AK2.08	3.1											263	263	
59	HSO/SCW/EA	OT 112	295001 AK3.02	3.7											99	99	
60	RBM	0280.08	215002 A3.04	3.6					235	235							
61	RECW/EA	ON 113	295018 AK3.04	3.3											205	205	
62	Prot. Devices	OM-C-7.2	294001 K1.07	3.6	196	196											
63	Plant Air/EA	ON 119	295019 AA1.04	3.2											276	276	
64	DEOX/EA	S52.1.B	295020 AK3.06	3.3											216	216	
65	FWLCS/EA	OT 110	295008 AK3.01	3.4											158	158	
66	DCWS/EA	OT 101	295012 AK2.02	3.6											227	227	
67	CAT	C&TM 4.2	294001 K1.02	4.5	215	215											
68	DW Spray/EA	T 102	295028 SG.12	3.8											160	160	
69	DC/EA	E-2FD	295004 AK1.06	3.3											271	271	
70	Containment/EA	T 102	295029 EK1.01	3.4											163	163	
71	ARM/EA	T 103	295033 SG.11	4.0											154	154	
72	PRM/EA	0710.04	295034 EK2.01	3.9											236	236	
73	TECW/EA	ON 117	295018 AK3.02	3.3											238	238	
74	CASS/EA	0160.05	295020 AK2.02	2.6											220	220	
75	EDG	0670.05	264000 K4.02	4.0			272	272									
					4	4	3	5	3	1	0	0	0	0	15	15	0

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WRITTEN EXAMINATION
NRC INITIAL EXAM

						Plant Generics		Plant Systems						Emergency/Abnormal Evolutions				
								Group 1		Group 2		Group 3		Group 1		Group 2		Group 3
						13%	17%	28%	23%	19%	13%	4%	4%	13%	26%	19%	17%	4%
Q#	Topic	Reference	K&A			RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO
76S	Cont. Rod	0020.05	201003	K4.01	3.0								255					
77S	Main Stm	0120.12a	239001	SG.11	3.3								270					
78S	TIPS	0290.10	215001	K6.04	3.4								198					
79S	Refuel/EA	ERP 101	295023	AA2.05	4.6										177			
80S	FPC/EA	TS/GP	295023	SG.08	3.9										176			
81S	SCW/EA	ON 114	295005	AK2.04	3.3												171	
82S	RADWASTE	0705.02c	268000	K1.01	2.6								273					
83S	SDC/EA	S51.8.B	295021	AA1.05	3.0												201	
84S	Recirc/EA	OT 104	295014	AK2.11	3.7										254			
85S	SPOTMOS/EA	0130.07	295013	AK1.03	3.3										130			
86S	CST-RWST/EA	T 235	295030	EA1.06	3.4										204			
87S	HPCI/EA	0340.15	295007	AA1.02	3.7										152			
88S	Indications	E1	295003	AA2.02	4.3										251			
89S	CAC/EA	OT 101	295017	SG.10	3.8										268			
90S	TECW/EA	E10/20	295003	AK1.02	3.1										267			
91S	DC/EA	SE-6	295016	AK2.02	4.1										197			
92S	CAR/EA	ON 102	295017	AK2.09	2.9										269			
93S	*F017/EA	0370.10	294024	EA1.11	4.2										172			
94S	RSP/EA	SE-1	295016	AA1.08	4.0										194			
95S	ECCS Suct. Strn/EA	0370.10	295026	EK1.01	3.4										174			
96S	RW HVAC/EA	T 104	295038	EK2.01	3.4										150			
97S	Fire Pro	OM-L-10.1	294001	K1.16	3.8		225											
98S	Procedure Use	OM-C-9.1	294001	A1.01	3.4		277											
99S	MOV Operability	OM-C-7.5	294001	A1.10	4.2		200											
100S	CRS Duties	OM-L-3.2	294001	A1.03	3.7		146											
						0	4	0	0	0	0	0	4	0	15	0	2	0

1996 LGS
WRITTEN EXAMINATION
NRC INITIAL EXAM

						Plant Generics		Plant Systems						Emergency/Abnormal Evolutions				
								Group 1		Group 2		Group 3		Group 1		Group 2		Group 3
						13%	17%	28%	23%	19%	13%	4%	4%	13%	26%	19%	17%	4%
Q#	Topic	Reference	K&A			RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO	SRO	RO
76R	Vessel	0010.08	290002	SG.04	3.2							224						
77R	Main Stm	0120.09b	239001	K4.09	3.3					278								
78R	TIPS	0290.09	215001	A1.04	2.0 *							195						
79R	Flt.Demin/EA	OT 100	295009	SG.10	4.2									141				
80R	Hi DW Press	T102	295024	SG.12	3.9									161				
81R	DC/EA	E10/20	295003	AK2.01	3.2											253		
82R	4KV/EA	SE-1	295016	AA1.04	3.1											98		
83R	CRDM	060.04	201003	K4.06	2.6					260								
84R	Radwaste	0705.02	268000	K3.04	2.7							279						
85R	Recirc F.C.	0040.08c	202002	K1.02	4.2			237										
86R	Pool Spray	0370.09b	230000	K4.03	3.5					242								
87R	FW	0540.14b	259001	A2.03	3.6			280										
88R	Pool Cooling	0370.03c	219000	A2.06	2.7					243								
89R	Main Turb	0560.07	245000	A4.07	2.9					156								
90R	NSSSS	0180.06h	223002	K3.10	2.9			264										
91R	SBGT	0733.05	261000	K4.02	2.6			217										
92R	ESW	0680.06	264000	A3.06	3.1			261										
93R	CAC	0160.05	223001	A4.10	3.2			203										
94R	DCWS	0150.6d	223001	K6.01	3.6			232										
95R	SDC/EA	ON 121	295021	AA1.02	3.5													149
96R	ON 111/EA	ON 111	295035	EK1.01	3.9													145
97R	T103/EA	SCC/T	295032	EK2.01	3.5													202
98R	T103/EA	SCC/L	295036	EK3.04	3.1													206
99R	ECCS/EA	T 102	295030	EK3.07	3.5											234		
100R	TEVENT/EA	T 104	295038	EK2.03	3.6											155		
						0	0	7	0	5	0	3	0	2	0	4	0	4

* New Operator Task Despite Low IF

NO.: 187 REV.: 4 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 202001K6.07 TAXONOMY NO.:
LESSON PLANS: LOT0040.04
:
CATEGORY: 96
SYSTEMS: RECIRC

QUESTION :

Unit 1 is at 65% power with three reactor feed pumps in Automatic. The "1B" feedflow indicator fails to 0.5 Mlb/hr.

Which ONE of the following describes when a recirc runback will occur?

a. Reactor level dropping below 27.5"

b. "1B" Condensate pump trip

c. "1B" Reactor Feed Pump trip

d. "1A" Reactor Feed Pump Discharge Valve closure

ANSWER : A

Reference: 1

NO.: 169 REV.: 0 TYPE: MC ENTERED BY: DCW DATE ENTERED: 11/25/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 216000K3.07 TAXONOMY NO.:
LESSON PLANS: LOT0050.09C
:
CATEGORY: 96
SYSTEMS: ADS RHR

QUESTION :

If conditions requiring the automatic actuation of ADS occurred with the "C" RHR pump discharge pressure transmitter failed downscale, which ONE of the following describes ADS response?

a. ONLY Division 1 ADS will operate automatically.

b. ONLY Division 3 ADS will operate automatically.

c. Both Divisions of ADS will operate automatically.

d. ADS will not operate automatically.

ANSWER : C

Reference: #2

NO.: 257 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 201001K1.09 TAXONOMY NO.:
LESSON PLANS: LOT0070.04
:
CATEGORY: 96
SYSTEMS: CRDH

QUESTION :

Which ONE of the following reflects the expected response to the loss of instrument air to the Control Rod Drive Hydraulic system during normal plant operation at 100% power?

a. RECIRCULATION PUMPS SEAL LEAKAGE HI FLOW alarms

b. CRD HCU Accumulator Trouble alarms

c. CRD Mechanism High Temperature alarms

d. Charging Water Header Low Pressure alarm

ANSWER : C

Reference: 3

NO.: 192 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 201002K4.02 TAXONOMY NO.:
LESSON PLANS: LOT0080.06
:
CATEGORY: 96
SYSTEMS: RDCS

QUESTION :

Which ONE of the following conditions will initiate a Control Rod Withdrawal Block regardless of IRM Range Switch selection, when in OPCON 2?

a. SRM Downscale

b. SRM Detector Withdrawal

c. IRM Downscale

d. IRM Detector Withdrawal

ANSWER : D

Reference: 4

NO.: 199 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 204000A2.01 TAXONOMY NO.:
LESSON PLANS: LOT0110.06B
:
CATEGORY: 96
SYSTEMS: RWCU

QUESTION :

The operating RECW pump trips and the standby pump fails to start when Unit 2 is operating at 100% power.

Which ONE of the actions below will occur FIRST on RWCU as a result of the RECW loss?

a. Pumps will trip

b. Pump shaft misalignment

c. Pump Seal Cavity failure

d. HV-44-2F001 and HV-44-2F004 valves will close

ANSWER : A

Reference: 5

NO.: 103 REV.: 0 TYPE: MC ENTERED BY: PMO DATE ENTERED: 11/14/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 215004K3.02 TAXONOMY NO.:
LESSON PLANS: LOT0240.07
:
CATEGORY: 96
SYSTEMS: SRM

QUESTION :

A reactor startup is in progress. The unit is in OPCON 2. SRM Channel "B" drive motor shorted and is <u>NOT</u> fully inserted.

Which ONE of the following describes the plant condition that will result in a control rod withdrawal block?

a. SRM "B" indicates 50 CPS and all IRM's on range 3.

b. SRM "B" indicates 50 CPS and all IRM's on range 8.

c. SRM "B" indicates 75 CPS and all IRM's on range 2.

d. SRM "B" indicates 125 CPS and all IRM's on range 2.

ANSWER : C
Reference: #6

NO.: 131 REV.: 4 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/18/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 218000K2.01 TAXONOMY NO.:
LESSON PLANS: LOT0330.03F
:
CATEGORY: 96
SYSTEMS: ADS DC

QUESTION :

A LOCA is in progress on the unit. Plant conditions are as follows:

RPV Level = -140 inches
DW Pressure = 12.7 psig
"C" RHR - Running in DW Spray Mode
"B" RHR - Injecting to the vessel
NO other ECCS pumps are running
Division 1 DC is DE-ENERGIZED

Which ONE of the following describes the ability of the ADS to actuate?

a. Division 1 ADS Solenoids will energize and operate within 105 seconds

b. Division 3 ADS Solenoids will energize and operate within 105 seconds

c. Division 3 ADS Solenoids will energize and operate ONLY if the "D" RHR pump is started

d. Division 3 ADS Solenoids will energize and operate ONLY if the manual pushbuttons are depressed with 105 seconds expended.

ANSWER : B

Reference: #7

NO.: 219 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 206000A1.06 TAXONOMY NO.:
LESSON PLANS: LOT0340.15
:
CATEGORY: 96
SYSTEMS: HPCI

QUESTION :

Following a reactor scram, reactor level increases to +70". Reactor level is slowly dropping due to a small Drywell leak and is currently +35". Drywell pressure is 2.3 psig.

Which ONE of the following describes the action(s) required to restart HPCI?

a. Arm and depress the "HPCI Initiation" pushbutton

b. Depress the "Inboard and Outboard Reset" pushbuttons

c. Depress the "Rx Level High Reset" pushbutton

d. Depress the "Seal-In Reset" pushbutton

ANSWER : C

Reference: 8

NO.: 223 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 203000K4.10 TAXONOMY NO.:
LESSON PLANS: LOT0370.08G
:
CATEGORY: 96
SYSTEMS: RHR LPCI

QUESTION :

Unit 2 has experienced a LOCA outside primary containment.

RPV pressure	219 psig slowly lowering
RPV level	-129 inches slowly lowering
Drywell pressure	1.1 psig

All safeguards buses are energized from offsite power
DIVISIONS 1 and 4 have received LOCA signals
DIVISIONS 2 and 3 are still in standby aligned for AUTO

Which ONE of the following describes the ECCS automatic response to current given conditions?

a. 2D RHR Pump started, as discharge pressure rises over 145 psig HV-51-2F017D will open

b. Injection will commence with the 2B Core Spray loop with one pump injecting

c. DIV I ADS blowdown will commence 105 seconds after level reached -129 inches

d. No ECCS injection can occur until drywell pressure exceeds 1.68 psig

ANSWER : A

Reference: 9

NO.: 252 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/?5/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 212000K4.12 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: RPS

QUESTION :

Preparations are being made to secure the Main Turbine with the following conditions:

TURBINE CONTROL VLV/STOP VLV SCRAM BYPASSED alarm
Turbine First Stage Pressure Trip Units indicate as follows:

Indicating light PIS-01-1N652A, 1N652B and 1N652D are OFF on 10C609 and 10C611

Indicating light PIS-01-1N652C is LIT on 10C609

Rx power 24%
BPV's all closed

What is the RPS response to an automatic TURBINE TRIP in this condition?

a. Half scram entry into OT-117 "RPS Failure" is required

b. Full scram on TCV RETS low pressure

c. Half scram on TSV closure

d. No RPS actuations are expected

ANSWER : C

Reference: 10

NO.: 262 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 217000A4.02 TAXONOMY NO.:
LESSON PLANS: LOT0380.08
:
CATEGORY: 96
SYSTEMS: RCIC

QUESTION :

Which ONE of the following describes how RCIC functions to prevent overfilling the Reactor Vessel?

a. Steam Supply Isolation Valves (HV-49-*F007, HV-49-*F008) close at +100" RPV level

b. Turbine Trip and Throttle Valve (HV-50-*12) closes at +54" RPV level

c. Govern Valve (FV-50-*13) ramps closed at +100" RPV level if Steam Supply Isolation Valve (HV-50-*F045) is full open

d. Steam Supply Isolation Valve (HV-50-*F045) closes at +54" RPV level, if valve was full open

ANSWER : D

Reference: 11

NO.: 209 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001K1.02 TAXONOMY NO.:
LESSON PLANS: C&TM 3.4.3
:
CATEGORY: 96
SYSTEMS: C&T

QUESTION :

If nuclear/personnel safety needs dictate an emergency clearance release and the clearance holder is not on site, then all of the following apply, EXCEPT;

a. The release may be made by the clearance holder's director/ senior manager.

b. The release may be made by Operations senior manager or designee.

c. The release may be made by phone and documented by indicating "Per Telecon" in the comments section of the clearance.

d. The release may be made after a thorough review of the work performed is completed and the job site walked down.

ANSWER : B

Reference: 12

NO.: 231 REV.: 5 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 290003A3.01 TAXONOMY NO.:
LESSON PLANS: LOT0450.09
:
CATEGORY: 96
SYSTEMS: CEHVAC

QUESTION :

An RPV variable leg instrument leak results in excess flow check valve actuation giving a DIVISION 4 low-low-low level signal.

Which ONE of the following describes the automatic response of the Control Enclosure Chill Water System if all the Control Enclosure "A" train fans are running with OA Chiller and OA Chill Water Pump?

a. No automatic response

b. OA Chiller trips, OB Chiller starts after 116 seconds

c. OB Chiller compressor starts after 167 seconds

d. OB Chiller will start only if the OA Chiller trips

ANSWER : C

Reference: 13

NO.: 207 REV.: 2 TYPE: MC ENTERED BY: DCW DATE ENTERED: 12/01/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 245000K6.01 TAXONOMY NO.:
LESSON PLANS: LOT0495.06
:
CATEGORY: 96
SYSTEMS: SSE

QUESTION :

Following a loss of 10Y105, the following MCR indications are present for the Steam Seal Evaporator:

SSE Hi Level alarm
SSE Lo Level alarm
SSE level indicator (LI-07-157) is downscale at -7"
Sealing steam pressure (PI-07-161) reads 4 psig

Which ONE of the below statements describes actions to maintain Sealing Steam.

a. No action required. SSE level indicator in MCR (LI-07-157) is independent of SSE level control instrumentation. Condensate makeup is not affected.

b. Condensate makeup level control valve bypass (HV-07-156) valve must be throttled open, in coordination with an EO monitoring SSE level locally.

c. Condensate makeup level control outlet valve (HV-07-157) must be closed to prevent flooding SSE and carryover to steam seals.

d. No action required. Auxiliary steam will automatically provide sealing steam when SSE steam seal header drops below 3.5 psig.

ANSWER : B

Reference: 14

NO.: 266 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 271000K3.02 TAXONOMY NO.:
LESSON PLANS: LOT0510.09
:
CATEGORY: 96
SYSTEMS: OG

QUESTION :

During 100% power operation, how would an extended shutdown of the Unit 2 Glycol Refrigeration system affect Offgas system operation and radioactive release rates?

a. Increased process flow dewpoint indication, decreased fission product gas holdup times, increased North Stack radioactive release rates

b. Decreased process flow dewpoint indication, decreased N16 holdup times, increased South Stack radioactive release rates

c. Increased process flow dewpoint indication, increased fission product gas holdup times, increased South Stack radioactive release rates

d. Decreased process flow dewpoint indication, decreased N16 holdup times, increased North Stack radioactive release rates

ANSWER : A

Reference: 15

NO.: 229 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001K1.07 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: IS&H

QUESTION :

Complete the following:

"During application of a Standard Safety Ground (SSG), the time interval between ______ followed by ______ should be minimized."

a. the Zero-Voltage Test, SSG application

b. de-energizing the conductor, the Zero-Voltage Test

c. the Zero-Voltage Test, grounding permission

d. Clearance review, the Zero-Voltage Test

ANSWER : A

Reference: 16

NO.: 274 REV.: 3 TYPE: MC ENTERED BY: DCW DATE ENTERED: 12/06/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 262001A2.06 TAXONOMY NO.:
LESSON PLANS: LOT0640.02
:
CATEGORY: 96
SYSTEMS: ACDIST

QUESTION :

Both units are operating at 100% power. 10 Station Auxiliary Bus is deenergized for a bus outage. The 20 Station Auxiliary Bus Supply Breaker (205) trips open due to auto transformer 4A differential overcurrent.

Complete the following:

"One minute later 22 Unit Aux Bus will be __________ and D22 bus will be ___________."

a. deenergized; deenergized

b. energized; deenergized

c. deenergized; energized

d. energized; energized

ANSWER : D

Reference: 17

NO.: 222 REV.: 4 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 203000K4.13 TAXONOMY NO.:
LESSON PLANS: LOT0400.05
:
CATEGORY: 96
SYSTEMS: RHRSW

QUESTION :

Both loops of RHRSW are in service to support Suppression Pool cooling on Unit 1 during an ATWS with the following conditions:

RPV level	-135"
RPV pressure	1050 psig
Rx power	31%
Post LOCA Radiation Monitors	2000 R/hr

What is the effect on the RHRSW flowpath if both RHR heat exchangers have known tube leaks?

a. OA RHRSW Pump will trip, Spray and Spray Bypass Valves will auto shut.

b. HV-51-1F014B and HV-51-1F068B will close, OD RHRSW Pump will trip on high discharge pressure.

c. OB RHRSW Pump will trip, all B loop valves will auto shut (HV-51-1F014B, 2F014B, 1F068A, and 2F068A)

d. All RHRSW Pumps are running in OVERRIDE following start after LOCA signal. The pumps will NOT trip in OVERRIDE.

ANSWER : B

Reference: 18

NO.: 256 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001K1.14 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: IS&H

QUESTION :

Which ONE of the following personnel is authorized to perform an emergency rescue in a permit required confined space?

a. EMT

b. Health Physics Technician

c. Confined Space Attendant

d. Atmospheric monitoring personnel

ANSWER : A

Reference: 19

NO.: 218 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 223002K1.10 TAXONOMY NO.:
LESSON PLANS: LOT0180.02
:
CATEGORY: 96
SYSTEMS: NSSSS

QUESTION :

Unit 2 is operating at 100% power with Drywell venting in progress. An RWCU backwash is commenced and the "Unit 1 & 2 South Stack Hi and Hi-Hi Radiation" alarms are received. Assuming no operator actions are taken, complete the following statement:

"The Group VIB CAC valves will _______ and the RWCU Backwash will _______ in response to the rad release."

a. remain open/continue

b. remain open/terminate

c. isolate/continue

d. isolate/terminate

ANSWER : A

Reference: 20

NO.: 102 REV.: 2 TYPE: MC ENTERED BY: PMO DATE ENTERED: 11/14/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 209001A1.07 TAXONOMY NO.:
LESSON PLANS: LOT0350.11
:
CATEGORY: 96
SYSTEMS: CS 4KV

QUESTION :

A sustained loss of off-site power is in progress. Unit 1 is in OPCON 3 and Unit 2 is in OPCON 4. All 4 Unit 1 EDG's started, no EDG's started on Unit 2. The Shift Manager has given his permission to cross-tie the D11 and D21 4KV Safeguard busses using D11 EDG. Following the cross-tie, a LOCA signal occurs on Unit 1 and D11 EDG load is 3000 Kw. Which ONE of the following is correct concerning D11 EDG load?

a. Securing the 1A CS pump will allow D11 EDG load to drop below its continuous load rating.

b. The D11 EDG can run indefinitely without exceeding any of its load ratings.

c. The D11 EDG should be tripped immediately to prevent damage due to overloading.

d. The D11 EDG will not accept further load due to isochronous mode of operation.

ANSWER : A
Reference: #21

NO.: 258 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 233000K1.02 TAXONOMY NO.:
LESSON PLANS: LOT0750.03
:
CATEGORY: 96
SYSTEMS: FP

QUESTION :

*** RO ONLY ***

- Unit 2 is in OPCON 5
- Reactor cavity is flooded with Fuel Pool Gates removed
- Shutdown Cooling has been out of service for two days
- Alternate Decay Heat Removal is provided by Fuel Pool Cooling (FPC)
- Flush of the 2A SDC loop using reactor cavity water is in progress through HV-51-2F024A (SUPP POOL CLG A) in preparation for restoring SDC following LLRT

Which ONE of the following describes proper control of flush rate through HV-51-2F024A?

a. Throttle open HV-51-2F024A to a flowrate that will maintain fuel pool weir plate overflow

b. Open HV-51-2F024A until skimmer surge tank level starts lowering and maintain that flowrate until skimmer surge tank level of 5'

c. Maintain flush rate through HV-51-2F024A such that suppression pool level will rise no more than 10 inches over the 5 minute flush period

d. Flush rate through HV-51-2F024A is limited only by maintaining the 22 feet of water cver fuel in the vessel for the 5 minute flush period

ANSWER : A

Reference: 22R (See SRO 80S (176))

NO.: 213 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001K1.09 TAXONOMY NO.:
LESSON PLANS: C&TM 6.1.8
:
CATEGORY: 96
SYSTEMS: C&T

QUESTION :

Which ONE of the following situations would require a clearance to provide work area isolation by two closed valves in series with a drain valve between them open?

a. Gas systems at pressures greater than 200 psig.

b. Fluid systems at pressures greater than 500 psig.

c. Any work area in which a normal depressurization path cannot be provided within the clearance boundary.

d. Any work area within a confined space as defined by Industrial Health and Safety Manual.

ANSWER : B

Reference: 23

NO.: 170 REV.: 1 TYPE: MC ENTERED BY: DCW DATE ENTERED: 11/25/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 259002K3.01 TAXONOMY NO.:
LESSON PLANS: LOT0550.04
:
CATEGORY: 96
SYSTEMS: FWLCS

QUESTION :

Feedwater Level Control System Logic receives input from feed flow and steam flow transmitters. If the reactor is at 100% power and Feedwater Control is in the Automatic 3-element mode, which ONE of the following will result in a higher than normal RPV level?

a. One steam flow transmitter output fails downscale OR one feed flow transmitter output fails upscale.

b. One steam flow transmitter output fails upscale OR one feed flow transmitter output fails downscale.

c. One steam flow transmitter output fails upscale OR one feed flow transmitter output fails upscale.

d. One steam flow transmitter output fails downscale OR one feed flow transmitter fails downscale.

ANSWER : B

Reference: #24

NO.: 101 REV.: 3 TYPE: MC ENTERED BY: PMO DATE ENTERED: 11/14/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 215003K4.02 TAXONOMY NO.:
LESSON PLANS: LOT0250.09
:
CATEGORY: 96
SYSTEMS: IRM RPS

QUESTION :

All IRM's are currently indicating power mid-scale on Range 3. Which ONE of the following completes the statement below?

"One of the IRMs goes upscale, a reactor half-scram will occur if the Mode Switch is in which position(s) ________."

a. Refuel only

b. Start up only

c. Start up and refuel only

d. Start up, refuel and run

ANSWER : D

Reference: #25

NOTE: On range 3 of the IRM's, all APRM's are downscale.

NO.: 188 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 202001A2.10 TAXONOMY NO.:
LESSON PLANS: LOT0030.06
:
CATEGORY: 96
SYSTEMS: RECIRC

QUESTION :

Unit 1 is in "STARTUP" with reactor pressure at 650#. The operating CRD pump tripped and efforts are underway to restore CRD flow.

Given the following indications for "1B" recirc pump:

#1 Seal Cavity Pressure 650#

#2 Seal Cavity Pressure 200#

SEAL LEAKAGE HI FLOW ALARM annunciated

SEAL STAGE HI/LO FLOW ALARM annunciated

Which ONE of the following describes the status of "1B" recirc seals?

a. Both seals are operating properly

b. #1 seal has failed

c. #2 seal has failed

d. Both seals have failed

ANSWER : C

Reference: 26

NO.: 193 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 201006A3.01 TAXONOMY NO.:
LESSON PLANS: LOT0095.03
:
CATEGORY: 96
SYSTEMS: RWM

QUESTION :

Using the attached drawing (Question 27 reference) of the Rod Worth Minimizer Panel, select the ONE choice below that describes the current status of the system.

a. Above LPSP, no blocks are applied

b. An Insert Block is applied, rod withdrawal is permitted

c. A Withdraw Block is applied, rod insertion is permitted

d. An Insert and Withdraw Block are applied

ANSWER : D

Reference: 27

NO.: 265 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 223001A1.07 TAXONOMY NO.:
LESSON PLANS: LOT0130.09
:
CATEGORY: 96
SYSTEMS: PC

QUESTION :

A LOCA is in progress on Unit 2 due to a steam leak in the drywell. No operator actions have been taken. Suppression Pool level is normal and Drywell pressure is 20 psig and slowly rising. What is the expected value for Suppression Chamber pressure?

a. 10 psig

b. 15 psig

c. 20 psig

d. 25 psig

SWER : B

Reference: 28

NO.: 228 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001K1.03 TAXONOMY NO.:
LESSON PLANS: LOT1760.02C
:
CATEGORY: 96
SYSTEMS: HP

QUESTION :

A maintenance worker is scheduled to work on a RWCU pump in a high radiation area. The worker's TEDE for this year is 3.3 rem. All of the following individuals must approve the Dose Extension Request for this worker EXCEPT:

a. HP Supervisor

b. Dosimetry Physicist

c. Radiation Protection Manager

d. Plant Manager

ANSWER : B

Reference: 29

NO.: 211 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 241000A1.01 TAXONOMY NO.:
LESSON PLANS: LOT0590.04
:
CATEGORY: 96
SYSTEMS: EHC

QUESTION :

With the unit at 80% power, which ONE of the following describes the effect of depressing the INCREASE pushbutton associated with the BYPASS VALVE OPENING JACK SELECTOR?

a. There is NO effect.

b. Bypass valves open, control valves close to maintain pressure.

c. Bypass valves open, reactor pressure decreases until a group one isolation occurs.

d. Bypass valves will open, control valves open in response to new pressure setpoint.

ANSWER : B

Reference: #30

NO.: 221 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 226001K4.12 TAXONOMY NO.:
LESSON PLANS: LOT0370.09A
:
CATEGORY: 96
SYSTEMS: RHR

QUESTION :

The following conditions exist for Unit 2:

RPV level -118"
Drywell pressure 25 psig
Drywell temperature 260°F
RPV level is being maintained with;
2A Core Spray loop at 3200 gpm
2B LPCI loop at 5000 gpm
2C LPCI loop at 5000 gpm

Which ONE of the following describes the ability to spray the drywell?
"Drywell sprays can be commenced. . . "

a. only after RPV pressure is lowered

b. only after the DIV I Core Spray initiation pb is depressed

c. immediately with the "A" Loop of RHR

d. immediately with fire water aligned to the "B" Loop

ANSWER : C

Reference: 31

NO.: 212 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295015AK2.11 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: IA

QUESTION :

A complete loss of instrument air has resulted in a reactor scram. Scram valves opened but all rods have failed to fully insert. Instrument air header pressure is 5 psig on both headers. T-217 "RPS/ARI Reset and Backup Method of Draining the Scram Discharge Volume" has been directed. Complete the following statement:

"Scram Discharge Volume DRAIN VALVES fail __________ and wil. be _____ when T-217 is completed."

a. OPEN; OPEN

b. CLOSED; OPEN

c. OPEN; CLOSED

d. CLOSED; CLOSED

ANSWER : D

Reference: #32

NO.: 100 REV.: 3 TYPE: MC ENTERED BY: PMO DATE ENTERED: 11/14/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001K1.01 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OM

QUESTION :

While conducting an independent verification (IV) using a COL, the Independent Verifier discovers a clearance tag on valve 48-1020 in the OPEN position. The valve is listed as CLOSED in the COL. Which ONE of the following is appropriate?

a. Initial and date the step and annotate the clearance number on the COL.

b. Close the valve, remove the clearance tag and attach it to the COL, initial and date the step.

c. Mark the step "N/A", annotate the clearance number on the COL, initial and date the step.

d. Annotate the clearance number and valve position on the COL and note the COL step. DO NOT initial or date the step.

ANSWER : D

Reference: #33

NO.: 208 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 262001K4.02 TAXONOMY NO.:
LESSON PLANS: LOT0650.04
:
CATEGORY: 96
SYSTEMS: 480VAC

QUESTION :

Which of the following describes the 480 VAC Non-Safeguard Load Center supply and Bus Tie Interlock?

a. Opening a Load Center Supply Breaker with the Bus Tie Breaker closed will close the alternate supply breaker.

b. Closing the alternate Load Center Supply Breaker with a supply and Bus Tie Breaker CLOSED will trip OPEN the Bus Tie Breaker.

c. Closing a Load Center Bus Tie Breaker with both supply breakers closed will trip OPEN the supply breakers.

d. Opening a Load Center Bus Tie Breaker with ONE supply breaker closed will close the alternate supply breaker.

ANSWER : B

Reference: 34

NO.: 190 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 215005K3.07 TAXONOMY NO.:
LESSON PLANS: LOT0260.11
:
CATEGORY: 96
SYSTEMS: LPRM RBM

QUESTION :

Reactor power is 97%. Rod 14-23 is being pulled from position 40 to 48. An adjacent "A" level LPRM, 16-25A goes upscale.

What effect will this have on the RBM?

a. The RBM is not affected

b. RBM reference power will increase

c. RBM reference power will decrease

d. RBM will go into a TRIP/INOP condition

;WER : A

Reference: #35

NO.: 142 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/18/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295006AA2.05 TAXONOMY NO.:
LESSON PLANS: LOT0768.04
:
CATEGORY: 96
SYSTEMS: SPDS PMS

QUESTION :

Given the following PMS indications:

RX LEVEL -89 with light blue border
SCRAM LO +12.5" with red border
RX POWER 0.0% with yellow border
APRM DOWNSCALE with dark blue border
Scram Event Indicator display "NO SCRAM" with dark blue border
Control Rod Position display indicates all rods green

Which ONE of the following describes the status of the control rods?

a. RPS and ARI initiated, rods are inserted

b. RPS failed, ARI initiated, rods are inserted

c. RPS and ARI failed, rods are withdrawn

d. RPS failed, ARI initiated, rods are withdrawn

ANSWER : B

Reference: 36

NO.: 128 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/18/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001A1.03 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: A

QUESTION :

You have worked the following schedule over the last 7 days in support of the outage:

Monday	Off
Tuesday	06:30 to 16:30
Wednesday	06:30 to 16:30
Thursday	06:30 to 12:30
Friday	06:30 to 18:30
Saturday	06:30 to 16:30
Sunday	06:30 to 22:30
Monday	?

Which ONE of the following is the MAXIMUM number of hours you can work (Nuclear Safety Related) on Monday without obtaining any special authorization?

a. 0 hours

b. 4 hours

c. 8 hours

d. 12 hours

ANSWER : C

Reference: #37

NO.: 241 REV.: 2 TYPE: MC ENTERED BY: PMO DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 205000K4.02 TAXONOMY NO.:
LESSON PLANS: LOT0370.09D
:
CATEGORY: 96
SYSTEMS: RHR SDC

QUESTION :

Unit 2 is in shutdown cooling with the "2B" RHR pump when reactor pressure increases to 90#. Which ONE of the following reflects the RHR valve response?

2F006B, RHR PP S/D CLG SUCT INTERTIE VLV
2F008, RHR SHUTDOWN CLG SUCTION OUTBRD PCIV
2F009, RHR SHUTDOWN CLG SUCTION INBRD PCIV
2F015B, SHUTDOWN CLG INJECTION PCIV

	2F006B	2F008	2F009	2F015B
a.	As is	Closes	Closes	Closes
b.	As is	Closes	Closes	As is
c.	Closes	As is	Closes	As is
d.	Closes	As is	As is	As is

ANSWER : A

Reference: 38

NO.: 162 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295010AK3.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OT-101

QUESTION :

OT-101, "High Drywell Pressure", directs Drywell cooling to be maximized. Complete the following statement:

"Drywell cooling is maximized by running _______ fan(s) in each unit cooler and operating _______ Drywell chiller(s)."

a. one/one

b. one/two

c. two/one

d. two/two

ANSWER : A

Reference: 39

NO.: 168 REV.: 2 TYPE: MC ENTERED BY: DCW DATE ENTERED: 11/25/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295007SG11 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: MS

QUESTION :

The unit is at 95% power. ST-2-041-619 RPS MSIV CLOSURE FUNTIONAL TEST is in progress. The Inboard "B" Test pushbutton was depressed and released immediately after the "B" half scram was received. The unit RO reports that "RPV pressure has increased by 2 psig and continues to increase slowly". Which ONE of the following describes the actions required?

a. No pressure rise is expected for this test, immediately scram.

b. Immediately position "B" INBOARD MSIV Control Switch to CLOSE.

c. Reduce power per RMSI to keep RPV pressure less than 1053 psig.

d. Immediately depress "B" INBOARD MSIV test pushbutton.

ANSWER : C

Reference: #40

NO.: 189 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295015AK20.4 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OT117 IRM RPS

QUESTION :

A reactor startup is in progress. Power is on Range 2 of the IRM's. The unit RO allows the "A" IRM to increase to 124/125 of scale and the "F" IRM to increase to 122/125 of scale. An "A" side half scram occurs.

Which ONE of the following describes the unit RO expected actions?

a. Immediately insert a full reactor scram

b. Range up on "F" IRM to prevent a full reactor scram

c. Range up on "A" IRM and reset the "A" side half scram and continue the startup

d. Bypass the "A" IRM, reset the "A" side half scram and continue the startup

ANSWER : A

Reference: #41

NO.: 275 REV.: 2 TYPE: MC ENTERED BY: DCW DATE ENTERED: 12/06/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001A1.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: A

QUESTION :

All of the following require initiation of a Temporary Change (TC) to a procedure EXCEPT:

a. S54.1.A incorrectly lists HS-054-*10 location as 00-C308 and it should be 00-C306.

b. S10.1.A (COL) incorrectly lists valve 10-1175B as OPN and it should be CLSD.

c. S12.1.A (COL) incorrectly lists "A" RHRSW PP DISCH. VLV as 12-0012A and it should be 12-0002A.

d. ST-6-107-590-2 incorrectly lists SLC tank level indicator as LI-48-2R603 and it should be LI-48-2R601.

ANSWER : A

Reference: 42

NO.: 143 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/18/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295031EA1.08 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: T200

QUESTION :

Which ONE of the following describes the systems used for Unit 2 Alternate Injection in T-111 for T-244, Firewater?

a. 2A RHR Loop and Backup Diesel Driven Fire Pump

b. 2B RHR Loop and Motor Driven Fire Pump

c. 2A RHR Loop and Portable Diesel Generator

d. 2B RHR Loop and Diesel Driven Fire Pump

ANSWER : A

.erence: 43

NO.: 191 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295037EK1.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: TRIP T-117

QUESTION :

T-117 directs the lowering of RPV level under certain conditions.

Which ONE of the following explains why we reduce RPV level?

a. To increase neutron leakage from the core

b. To maintain boron concentration in the core

c. To inhibit natural circulation in the core

d. To provide a reduction in subcooling of feedwater

ANSWER : C

Reference: #44

NO.: 214 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 215005A2.05 TAXONOMY NO.:
LESSON PLANS: LOT0270.11C
:
CATEGORY: 96
SYSTEMS: APRM

QUESTION :

Which ONE of the following will be affected by a recirc flow trip unit "COMPARATOR TRIP"?

a. RBM

b. APRM

c. APRM and RBM

d. RWM

ANSWER : B

Reference: #45

NO.: 157 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295014AA1.07 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OT-104

QUESTION :

Unit 2 is in OPCON 1 at 95% power. The #4 Turbine Control Valve mechanically fails closed. Complete the following:

"Reactor power will stablize at a ________________."

a. higher value due to a rise in reactor pressure

b. higher value due to lowering FW temperature

c. lower value due to a rise in FW temperature

d. lower value due to lowering reactor pressure

ANSWER : B

Reference: 46

NO.: 230 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001A1.11 TAXONOMY NO.:
LESSON PLANS: LOT1570.17
:
CATEGORY: 96
SYSTEMS: A

QUESTION :

A PRO is required to verify the status of a Temporary Plant Alteration (TPA). Select the location below where the ECR and attachments for an active TPA can be referenced.

a. Any PIMS terminal

b. SM/S.O.A. office files

c. Station library

d. System Manager's System Notebook

ANSWER : B

Reference: 47

NO.: 159 REV.: 6 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295014AA2.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: GP

QUESTION :

Unit 1 is in OPCON 2

Reactor is subcritical at 1.5×10^4 cps

Coolant temperature is 191°F

Rod 30-51 is in sequence rod at position 08 and will be withdrawn to position 10

ESTIMATED CRITICAL POSITIONS sheet is provided (Question 48 reference)

After a single notch withdrawal signal is applied to rod 30-51 the following indications exist:

Reactor period is sustained at 25 seconds, with SHORT PERIOD annunciator

A and B SRM indicate 8×10^4 cps

C and D SRM indicate 1.6×10^4 cps

Rod 30-51 indicates "12" on 4 rod display

Which ONE of the following describes action to be taken?

a. No action, this is normal "prompt jump" on rod withdrawal near criticality

b. Single rod scram rod 30-51 due to "double notching" of the control rod

c. Immediately insert rod 30-51 to position 08 to mitigate the "short period" condition

d. No action, this is an expected response for a "high notch worth" condition

ANSWER : C

Reference: 48

NO.: 173 REV.: 4 TYPE: MC ENTERED BY: DCW DATE ENTERED: 11/25/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295025EK2.04 TAXONOMY NO.:
LESSON PLANS: LOT0315.04
:
CATEGORY: 96
SYSTEMS: RRCS RECIRC

QUESTION :

What action, given below, should be taken for the conditions given:

ADS SRVs are open with handswitches in AUTO

HV59-129A and HV59-129B, PCIG to Drywell, have been shut due to a PCIG rupture.

All rods in

RPV level -18" and rising

RPV pressure 1210 psig

A Recirc pump at minimum speed

B Recirc pump tripped

a. Manually initiate RRCS using manual pbs

b. RAISE EHC Pressure Setpoint

c. OPEN A, B, C SRVs with the handswitch

d. TRIP the A Recirc Pump

ANSWER : D

Reference: 49

NO.: 153 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295009AA2.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OT-100

QUESTION :

Unit 1 is at 35% power, the "1B" Main Steam Line flow transmitter fails upscale. Which ONE of the statements below describes the result on reactor level?

a. Increase and cause a turbine trip

b. Increase and stabilize below +54"

c. Decrease and cause a recirc runback

d. Decrease and stabilize above +27.5"

ANSWER : B

Reference: 50

NO.: 240 REV.: 3 TYPE: MC ENTERED BY: PMO DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 223001K4.04 TAXONOMY NO.:
LESSON PLANS: LOT0140.03
:
CATEGORY: 96
SYSTEMS: DWVENT

QUESTION :

The fans in the table below are run for 15 minutes per ST-6-077-310-1 "Drywell Unit Cooler Hydrogen Mixing System Operability Test Run".

FAN NUMBER	DESCRIPTION
1A1V212	"A1 Drywell Unit Cooler Fan" (A1)
1A2V212	"A2 Drywell Unit Cooler Fan" (A2)
1B1V212	"B1 Drywell Unit Cooler Fan" (B1)
1B2V212	"B2 Drywell Unit Cooler Fan" (B2)
1G1V212	"G1 Drywell Unit Cooler Fan" (G1)
1G2V212	"G2 Drywell Unit Cooler Fan" (G2)
1H1V212	"H1 Drywell Unit Cooler Fan" (H1)
1H2V212	"H2 Drywell Unit Cooler Fan" (H2)

Which description below gives the correct number and combination of fans required?

a. Any four must run.

b. Eight (8) of eight (8) must run.

c. Four (4) of eight (8) must run; A2, B1, G1, H2 is a satisfactory combination.

d. Six (6) of eight (8) must run; A1 or A2 and B1 or B2 with any other four (4) fans in a satisfactory combination.

ANSWER : C

Reference: 51

NOTE: Remove this section of T.S.

NO.: 226 REV.: 4 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 290001K6.01 TAXONOMY NO.:
LESSON PLANS: LOT0190.08A
:
CATEGORY: 96
SYSTEMS: REHVAC

QUESTION :

During July, Unit 1 Reactor Enclosure (RE) ventilation is in service. A control problem causes the six (6) "face dampers" to OPEN and two (2) "bypass dampers" to CLOSE.

What effect will this ventilation situation have on secondary containment?

a. Zone 3 temperature will rise causing T-103 entry conditions

b. Cooling coil drywell chilled water will isolate to high air flow

c. RE exhaust fan blade pitch will be signalled to "MINIMUM"

d. RE d/P will get less negative (closer to zero)

ANSWER : D

Reference: 52

NO.: 129 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/18/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001A1.04 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: SE

QUESTION :

A Unit 1 Division 4 LOCA signal has occurred and NO operator actions were taken. All of the following are available, EXCEPT:

a. ENS (FTS-2000 Network - NRC phone)

b. Prelude and Meridian systems

c. Plant Public Address system (PPA)

d. Radio system

ANSWER : C

Reference: #53

NO.: 259 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 262001A4.03 TAXONOMY NO.:
LESSON PLANS: LOT0660.05C
:
CATEGORY: 96
SYSTEMS: 4KV

QUESTION :

During performance of a clearance restoration IVOR for the 2A CRD pump, 4KV breaker installed, the EO reports that the breaker is in the connected position but, the red TRIP pushbutton is in the FULL-IN position.

Which ONE of the following describes the cause AND effect of this breaker condition?

a. The position cell switches have not been made up. The breaker will not respond to close signals.

b. The unlocking lever has not been returned to its normal full-down position. The breaker will not close.

c. The charging springs motor toggle switch is "OFF". The closing springs must be manually charged to close the breaker.

d. The DC control fuses were NOT installed prior to rack-in. Breaker will only respond to local breaker test switch.

ANSWER : B

Reference: 54

NO.: 210 REV.: 3 TYPE: MC ENTERED BY: RTR DATE ENTERED: 12/04/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 211000A1.07 TAXONOMY NO.:
LESSON PLANS: LOT0310.06
:
CATEGORY: 96
SYSTEMS: RRCS SLC

QUESTION :

An EHC malfunction has resulted in a reactor pressure of 1080 psig. Reactor power is 100% and all other parameters are normal. Which ONE of the following will cause an IMMEDIATE drop in reactor power?

a. Arm and depress both the A1 and A2 RPS Scram pushbuttons.

b. Arm and depress a single DIVISION I and a single DIVISION 2 RRCS manual pushbutton.

c. Manually start the "A" SLC pump from the C603 panel handswitch.

d. Manually start the "A" SLC pump from the local "TEST" control switch.

ANSWER : C

Reference: #55

NO.: 233 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295022AK2.03 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: CRDH

QUESTION :

Which ONE of the following statements describes the effects of a CRD pump trip at 100% power?

a. Reactor pressure will maintain control rod scram accumulators at their present pressures and rods will still scram

b. Any control rod with scram accumulator pressure less than 955 psig will still scram if a valid scram signal is received

c. Any control rod with a scram accumulator pressure less than reactor pressure will drift in

d. Any control rod scram accumulators which depressurize to 0 psig will prevent the associated rod from scramming

ANSWER : B

Reference: 56

NO.: 175 REV.: 2 TYPE: MC ENTERED BY: DCW DATE ENTERED: 11/25/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001A1.09 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OM

QUESTION :

All of the following describe testing conditions where MCR Operators can grant permission to non-operator personnel to acknowledge and reset MCR annunciators EXCEPT?

a. HCU testing which actuates ACCUMULATOR TROUBLE alarms

b. SLC Tank level transmitter testing which actuates HI/LO TANK LEVEL alarms.

c. RDCS testing which actuates RDCS INOPERATIVE alarms

d. APRM testing which actuates NEUTRON MONITORING SYSTEM TRIP alarms.

ANSWER : D

Reference: #57

NO.: 263 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295002AK2.08 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: CIRC

QUESTION :

All of the following will result in dropping Main Condenser vacuum, EXCEPT:

a. Opening all Main Condenser circ water waterbox vacuum vent valves simultaneously

b. A cooling tower de-icing segment slot valve fails to close with tower de-icing in automatic operation

c. Cooling tower outlet weir debris screens high differential level due to biological growth

d. Leaking of condensate makeup to vacuum breaker valve's overflow drain to dirty radwaste

ANSWER : B

Reference: 58

NO.: 99 REV.: 1 TYPE: MC ENTERED BY: PMO DATE ENTERED: 11/14/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295001AK3.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: RECIRC HSO H2COOL

QUESTION :

Unit 2 is at 50% power. A GP-3 shutdown is in progress due to a failure of the main seal oil pump. The Emergency seal oil pump is operating at reduced discharge pressure. Hydrogen pressure in the generator is 55 psig and slowly dropping. Which ONE of the following describes expected plant response if NO further operator actions are taken?

a. The main generator will automatically trip on low hydrogen pressure.

b. The "A" recirc pump will trip and bypass valves will open. Generator load set will run back.

c. At 14 psig hydrogen pressure, air in-leakage to the generator will result in a combustible mixture in the generator casing.

d. The main turbine oil system will automatically back up the seal oil system and maintain generator gas pressure at 50 psig.

ANSWER : B
Reference: #59

NO.: 235 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 215002A3.04 TAXONOMY NO.:
LESSON PLANS: LOT0280.08
:
CATEGORY: 96
SYSTEMS: RBM

QUESTION :

Unit 1 is at 97% power. Rod 23-14 is selected and at position 48. Power is reduced using Recirc Flow to mitigate a back pressure problem.

Which ONE of the following describes a properly functioning Rod Block Monitor (RBM)?

a. UPSC trip, insert and withdrawal block, "B" RBM indicates 112%

b. Downscale alarm, no insert or withdrawal blocks generated

c. Upscale alarm, no withdrawal block, "A" RBM indicates 95%

d. DNSC trip results in withdrawal block, "A" RBM indicates 91%

ANSWER : D

Reference: 60

NO.: 205 REV.: 4 TYPE: MC ENTERED BY: DCW DATE ENTERED: 12/01/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295018AK3.04 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: RECW

QUESTION :

Given the following conditions for Unit 1:

47% power
1A RECIRC PUMP SEAL COOLING WATER LO FLOW ALARM
1B RECIRC PUMP SEAL COOLING WATER LO FLOW ALARM
1A DRYWELL INSTR GAS TROUBLE ALARM
1B DRYWELL INSTR GAS TROUBLE ALARM
REAC ENCL COOLING WATER HTX OUT LO PRESS ALARM
1A RECW Pump red light lit, green light out
1B RECW Pump green light lit, red light out
RECW Hx Outlet temperature (TI13-105) 68'F
RECW Hx Outlet pressure (PI-13-108) 79 psig

W t action should be taken to correct the problem indicated?

a. Manually start 1B RECW Pump

b. Align ESW to cool the RECW heat exchangers

c. Ensure Service Water properly aligned to both RECW heat exchangers

d. Restore RECW to PCIG compressor by bypassing the Group 8A (DCWS/RECW) isolation

ANSWER : A

Reference: 61

NO.: 196 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001K1.07 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OM

QUESTION :

Complete the following statement.

"In order to reset and close a circuit breaker which has tripped on thermals,

a. the cause of the trip is thought to be known and been corrected."

b. an inspection of the associated equipment is required."

c. the CRS shall document the actuation and actions initiated."

d. it must be reset prior to shift turnover."

ANSWER : A

Reference: 62

NO.: 276 REV.: 4 TYPE: MC ENTERED BY: WMT DATE ENTERED: 12/06/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS:

QUESTION :

Given the following:

2A Instrument Air Compressor is in AUTO

2B Instrument Air Compressor is in AUTO

Unit 2 Service Air Compressor is in AUTO

Service Air to Instrument Air crosstie is aligned to backup the "B" Instrument Air Header.

Backup Service Air Compressor is in AUTO and selected to Unit 1.

The feed for 2A Instrument Air Compressor has tripped open.

2B Instrument Air Dryer has isolated.

Instrument Air pressure indications for A and B headers are dropping.

Which ONE of the following describes how the Service Air System responds?

a. Service air will automatically backup and repressurize B header when 2B receiver pressure drops to 70 psig.

b. Service Air to Instrument Air crosstie must be manually aligned to "A" instrument air header.

c. Backup Service Air Compressor will automatically align to backup and repressurize 2B Instrument Air Header.

d. Service Air will isolate and dedicate its output to the service air header when either 2A or 2B receivers pressure drops to 70 psig.

ANSWER : B

Reference: 63

NO.: 216 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295020AK3.06 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: DEOX

QUESTION :

Unit 2 is in OPCON 4 with Suppression Pool cleanup and the DEOX skid in service. Which ONE of the following describes plant response to an inadvertent isolation signal causing closure of Suppression Pool Cleanup Suction valves?

a. Suppression Pool Cleanup Pump trips and Suppression Pool water level will go up.

b. Suppression Pool Cleanup Pump trips and Suppression Pool level remains the same.

c. Suppression Pool Cleanup Pump continues to run and Suppression Pool water level will go down.

d. Suppression Pool Cleanup Pump continues to run and Suppression Pool water level remains the same.

ANSWER : A

Reference: 64

NO.: 158 REV.: 1 TYPE: MC ENTERED BY: MGK DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295008AK3.01 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: MT FWLC

QUESTION :

Unit 2 is in OPCON 1 with the following conditions:

Reactor Power 39%
FWLC Master Controller in AUTO 3 element control
"B" Narrow Range level transmitter output failed LOW (LT-C32-N004B)
IC work is in progress ("A" NR is selected)

Which ONE of the following describes what will happen if the "A" Narrow Range level transmitter output fails LOW under these conditions? Assume no operator actions are taken.

a. RPV level increases, main turbine trips and reactor scrams

b. RPV level decreases, reactor scrams on low level

c. RPV level increases, main turbine fails to trip

d. RPV level decreases to a lower level above the scram setpoint

ANSWER : C

Reference: #65

NO.: 227 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295012AK2.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OT DCWS

QUESTION :

Given the following on Unit 2:

Drywell Temperature 133°F
Drywell Pressure 0.7 psig
2A DCWS Pump in RUN, 2B DCWS Pump in AUTO
2A Chiller in RUN, 2B Chiller in OFF
A Loop in service, B Loop secured and available

All of the following actions should be taken EXCEPT:

a. Place 2B DCWS Pump in RUN

b. Place 2B Chiller in RUN

c. Shut HV-57-116 N_2 Makeup Supply

d. Open supply and return valves for "B" Loop of DCWS

ANSWER : B

Reference: 66

NO.: 215 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001K1.02 TAXONOMY NO.:
LESSON PLANS: C&TM 4.2.9
:
CATEGORY: 96
SYSTEMS: C&T

QUESTION :

When an information tag is hung on a component with the AS APPLD POS "AFI" (applied for information), then:

a. The position code "TAGGED" should be used if applied to control stations.

b. The component position must be specified by another INFO, SCT or DANGER TAG applied to the component.

c. A brief description of the component status should be provided on the Information Tag.

d. The required component position prior to restoration of the equipment's energy source must be provided on the tag.

ANSWER : C

Reference: 67

NO.: 160 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295028 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: T-102

QUESTION :

A LOCA has occurred on Unit 1. The following conditions exist:

RPV level 17"
"C" and "D" RHR pumps injecting
DW pressure 25 psig
DW temperature 260°F
Suppression Pool pressure 24 psig
Suppression Pool level 40 feet and stable
"A" RHR is in Pool Spray Mode
"B" RHR is in Drywell Spray Mode

Which ONE of the following actions is required in response to the above conditions?

a. Enter T-112 "Emergency Blowdown"

b. Terminate Drywell sprays

c. Terminate Suppression Pool sprays

d. Vent the Containment per T-200

ANSWER : B

Reference: #68 T-102

NO.: 271 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295004AK1.06 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: DC

QUESTION :

Unit 2, DIVISION IV Safeguard DC Bus has been lost. Prior to restoring the 2FD Bus Power, which ONE of the following must have their feed opened to prevent inadvertent isolation?

a. RWCU Inboard Isolation Valve, HV-44-2F001

b. RWCU Dump Flow Control Valve, HV-C-44-2F033

c. RWCU Outboard Isolation Valve, HV-44-2F004

d. RWCU Discharge to Main Condenser Valve, HV-44-2F034

'SWER : C

Reference: 69

NO.: 163 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295629EK1.01 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: T-102

QUESTION :

All of the following describe concerns associated with high Suppression Pool level EXCEPT:

a. Suppression Pool Vent Path operation could be impaired

b. Drywell Vacuum breaker operation could be impaired

c. Heat capacity temperature limit of the pool could be exceeded

d. Design limits of the pool could be exceeded if an SRV lifts

ANSWER : C

Reference: #70

NO.: 154 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295033SG11 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: T-103

QUESTION :

Unit 2 is at 75% power. Which ONE of the following conditions require immediate entry into T-103, "Secondary Containment Control"?

a. 2.0 mr/hr Refuel Floor HVAC Isolation Signal

b. Control Enclosure Steam Flooding Damper Actuation

c. North Stack Hi Hi Radiation Alarm Condition

d. Valid Main Steam Line High Radiation Alarm

ANSWER : D

Reference: #71

NO.: 236 REV.: 4 TYPE: MC ENTERED BY: WMT DATE ENTERED: 12/06/96
DIFFICULTY: C POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295034EK2.01 TAXONOMY NO.:
LESSON PLANS: LOT0710.04
:
CATEGORY: 96
SYSTEMS: PRM

QUESTION :

Unit 2 is in OPCON 1 with fuel movements in progress in the spent fuel pool. Unit 2 Refuel Floor Ventilation is in service. Radwaste personnel move radioactive material with a dose rate of 3 mr/hr near the Unit 1 Refuel Floor Ventilation Exhaust Radiation Monitors.

What is the effect of this condition on the plant?

a. Unit 2 Refuel Floor vent fans will trip after a 100 second time delay

b. These rad monitors provide alarm functions only, T-103 should be entered and executed by the crew

c. SBGT will auto start and be aligned to draw down Secondary Containment Zone 3

d. No effect since Refuel Floor Unit 1 slide gate damper will be shut with Unit 2 Refuel Floor ventilation in service

ANSWER : C

Reference: 72

NO.: 238 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295018AK3.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: ON TECW

QUESTION :

Unit 2 is at 26% power with the following indications:

TECW HX OUTLET HI TEMP alarm
TECW HX OUTLET temp (TI-14-203) is 108°F
TECW HX OUTLET pressure (PI-14-206) is 60 psig

Which ONE of the following would improve conditions?

a. Trip the Backup Service Air Compressor and secure cooling to its after condenser

b. Secure operating 2B CRD pump and enter ON-107 until the alternate TECW pump is started

c. Start OC ESW pump and align its cooling flow to the inservice and alternate TECW heat exchangers

d. Transfer house loads, runback Recirc to minimum, scram and secure all condensate pumps

ANSWER : D

Reference: 73

NO.: 220 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295020AK2.02 TAXONOMY NO.:
LESSON PLANS: LOT0160.05
:
CATEGORY: 96
SYSTEMS: CASS

QUESTION :

An inadvertent isolation signal is generated and closes the following three valves for the 10S206 H_2/O_2 analyzer:

SV-57-133 Drywell Sample Point Isolation
SV-57-183 Suppression Pool Sample Point Isolation
SV-57-191 Analyzer Return Isolation

Complete the following statement:

"The 10S206 H_2/O_2 analyzer __________."

a. is inoperable

b. is operating normally

c. can be returned to service by selecting another sample point in the MCR

d. can be returned to service only by local manual valve realignment

ANSWER : A

Reference: 74

NO.: 272 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 26400K4.02 TAXONOMY NO.:
LESSON PLANS: LOT0670.05
:
CATEGORY: 96
SYSTEMS: EDG

QUESTION :

An inadvertent DIVISION I LOCA signal has occurred on Unit 2. The cause is under investigation and the LOCA signal is NOT reset. The D21 Emergency Diesel Generator is running. Under these conditions, which ONE of the following will cause the D21 EDG to trip?

a. Generator reverse power condition

b. Generator differential overcurrent condition

c. Generator ground neutral overcurrent condition

d. D21 4KV Safeguard Bus overcurrent condition

.SWER : B

Reference: #75

NO.: 255 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 201003K4.01 TAXONOMY NO.:
LESSON PLANS: LOT0020.05
:
CATEGORY: 96
SYSTEMS: NUCFUEL

QUESTION :

*** SRO ONLY ***

Given the CCTAS sheet for CRB replacement, what plant design feature requires Step 3 to be completed before Step 4b?

a. control rod design that limits rod speed during a rod drop accident

b. refuel bridge design that limits total weight on the bridge to 1500 pounds

c. fuel support piece design that requires it to be removed only with the service platform

d. core plate design that prevents removal of fuel support piece first

ANSWER : A

Reference: 76S

NO.: 270 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 239001SG11 TAXONOMY NO.:
LESSON PLANS: LOT0120.15
:
CATEGORY: 96
SYSTEMS: MS TS

QUESTION :

*** SRO ONLY ***

Unit 1 is at 100% power. During channel functional testing, I&C discovers that the "K" SRV Acoustic Monitor will not provide open indication in the Control Room.

Which ONE of the following actions must be taken?

a. Restore the monitor to operable within 48 hours or be in at least hot shutdown within the next 12 hours

b. Be in at least hot shutdown within 12 hours and in cold shutdown within the next 24 hours

c. Initiate a preplanned alternate method of monitoring SRV position within 72 hours and restore the monitor to operable within 7 days

d. Restore the monitor to operable within 7 days or be in at least hot shutdown within the next 12 hours and in cold shutdown within the following 24 hours

ANSWER : A

Reference: 77S, T.S. 3.4.2, T.S. 3.3.7.5

NO.: 198 REV.: 0 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 215001K6.04 TAXONOMY NO.:
LESSON PLANS: LOT0290.10
:
CATEGORY: 96
SYSTEMS: TIP

QUESTION :

*** SRO ONLY ***

During power operations on Unit 1, a TIP detector becomes stuck in the core.

Which ONE of the actions below should be taken?

a. Deenergize the ball valve

b. Manually close the ball valve

c. Deenergize the TIP drive machine

d. Manually fire the squib valve

ANSWER : D

Reference: 78S Tech Spec 3.6.3

NO.: 177 REV.: 2 TYPE: MC ENTERED BY: DCW DATE ENTERED: 11/25/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295023AA2.05 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: ERP

QUESTION :

*** SRO ONLY ***

Severe weather conditions, with winds being recorded at 52 mph, has prompted your shift manager to secure core alterations during 2R04. Immediately after this action was directed, you get a report from the fuel floor that the bridge mast has failed resulting in a spent bundle being released over the core resulting in significant bundle damage. The following alarms are received:

- REAC ENCL/REFUEL FLR VENT EXHAUST RAD MON A/B HI-HI/DOWNSCALE
- REAC ENCL/REFUEL FLR VENT EXHAUST RAD MON C/D HI-HI DOWNSCALE
- REFUELING FLOOR AREA HI RADIATION
- REFUELING FLOOR ISOLATION SIGNAL INITIATED

What Emergency Classification should be made by the Shift Manager?

a. Unusual Event

b. Alert

c. Site Area Emergency

d. General Emergency

ANSWER : C

Reference: 79S ERP101

NO.: 176 REV.: 4 TYPE: MC ENTERED BY: DCW DATE ENTERED: 11/25/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295023SG.08 TAXONOMY NO.: 295023SG.11
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: FDC ON TS

QUESTION :

*** SRO ONLY ***

Consider the following:

- Unit 2 is in OPCON 5
- Reactor cavity is flooded with the Fuel Pool Gates removed
- Shutdown Cooling (SDC) has been out of service for 2 days
- SDC loops A and B are OPERABLE but NOT in service
- Alternate Decay Heat Removal is provided by Fuel Pool Cooling (FPC) per GP6.2
- Alternate Reactor Coolant Circulation is provided by "Natural Circulation" per S53.7.A
- Flush of the 2A SDC loop using reactor cavity water is in progress through HV51-2F024A in preparation for restoring SDC following LLRT

Which ONE of the following would result from an excessive flush flowrate of the 2A SDC loop?

a. Skimmer surge tank overflows into reactor enclosure 313' elevation and entry into ON-121 (Loss Of SDC).

b. Loss of Alternate Decay Heat Removal and Circulation methods, entry into ON-125 (Loss Of FPC).

c. Trip of the FPC pumps, entry into ON-121 (Loss Of SDC), and entry into T-103 for high sump level.

d. SDC isolation causes a loss of "Natural Circulation", FPC remains in service as the Alternate Decay Heat Removal method.

ANSWER : B

Reference: 80S GP6.2 S53.7.A TS 3.9.11.b

NO.: 171 REV.: 2 TYPE: MC ENTERED BY: DCW DATE ENTERED: 11/25/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295005AK2.04 TAXONOMY NO.:
LESSON PLANS: LOT0630.03
:
CATEGORY: 96
SYSTEMS: SCW

QUESTION :

*** SRO ONLY ***

The Floor Supervisor has just reported a fire in the 2A Stator Cooling Water (SCW) Pump motor and that the pump is being secured. Several seconds later you receive a trip of the 2A Recirc Pump and a "2 GEN STATOR COOLANT TROUBLE" alarm.

Five (5) minutes later the Floor Supervisor reports that 2B SCW Pump auto started and has been running with a discharge pressure of 35 psig.

Reactor power is 57%

Generator current is 15,400 amps

.at Action should be taken?

a. Insert rods to reduce power to 44% and direct the Floor Supervisor to adjust the pressure control valve (PCV) on SCW.

b. Trip the Main Turbine and insert rods to reduce power to 33%. Preparations can be made to restart the 2A Recirc Pump.

c. Scram the reactor, trip the Main Turbine and trip the 2B Recirc Pump

d. Trip the 2B Recirc Pump and insert rods to reduce power to 29% to secure the main turbine.

ANSWER : C

Reference: 81S

NO.: 273 REV.: 4 TYPE: MC ENTERED BY: WMT DATE ENTERED: 12/06/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 268000K1.01 TAXONOMY NO.:
LESSON PLANS: LOT0705.02C
:
CATEGORY: 96
SYSTEMS: RAMSHP

QUESTION :

*** SRO ONLY ***

During Shift Turnover, the Radwaste EO reports that the 'B' Equipment Drain Sample Tank is available. This water can be transferred to all of the following tanks EXCEPT?

a. DWST

b. RWST

c. Unit 1 CST

d. Unit 2 CST

ANSWER : A

Reference: 82S

NO.: 201 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295021AA1.05 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: RHR SDC

QUESTION :

*** SRO ONLY ***

Unit 2 is in OPCON 4 with "B loop" of SDC in service. The following indications are noted:

SDC Flowrate 9000 gpm

RPV pressure 25 psig

2B RHR Heat Exchanger inlet temperature (DAS) is 145°F

2B Heat Exchanger outlet temperature (20C601 TI-51-227B) is 125°F

B recirc suction flow (FI-43-2R613) is 4000 gpm

Which ONE of the following describes the condition(s) indicated above?

a. Reactor coolant temperature indication, used to determine OPCON is not indicating an accurate value.

b. SDC flowrate must be reduced to 6000 gpm; RPV pressure is high but within the tolerance of a 0-1500 psig instrument

c. B recirc suction flow indication is inaccurate, it should be indicating close to 9000 gpm

d. B Recirc Pump suction valve (HV-43-2F023B) is full CLOSED and B Recirc Pump discharge valve (HV-43-2F031B) is OPEN

ANSWER : A

Reference: 83S

NO.: 254 REV.: 0 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295014A12.11 TAXONOMY NO.:
LESSON PLANS: LOT0040.096
:
CATEGORY: 96
SYSTEMS. RFC

QUESTION :

*** SRO ONLY ***

During Unit 2 operation at 92% power, the "2B" recirc pump scoop tube is locked up. "2B Recirc speed is 80%, the flow controller is set at 70%. Two hours later the controller is still set for 70%, and the "2B" Speed Demand and Deviation meters are upscale.

Which ONE of the statements below describes the effect on reactor power if the scoop tube lock is reset?

a. Slight (1-2%) increase

b. Slight (1-2%) decrease

c. Significant (>5%) increase

d. Significant (>5%) decrease

ANSWER : C

Reference: 84S S43.0.A

NO.: 130 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/18/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295013AK1.03 TAXONOMY NO.:
LESSON PLANS: LOT0130.07
:
CATEGORY: 96
SYSTEMS: MS PC

QUESTION :

*** SRO ONLY ***

The SRV opening sequence is posted in bold numbers near the 5 ADS Valve hand switches. Which ONE of the following describes the bases for the opening sequence?

a. Ensures SPOTMOS indication of bulk suppression pool temperatures is accurate.

b. Ensures SRV's are not discharging directly into ECCS pump suctions.

c. Ensures only SRV's with straight tail pipes are used, preventing tail pipe ruptures.

d. Aligns SRV discharge in areas close to A and B RHR pump suctions for faster heat removal.

ANSWER : A

Reference: #85 S

NO.: 204 REV.: 2 TYPE: MC ENTERED BY: DCW DATE ENTERED: 12/01/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295030EA1.06 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: T-235

QUESTION :

*** SRO ONLY ***

T-235, Refuel Water Transfer is being performed on Unit 1 to add water to the Suppression Pool.

RWST level is 15 feet. CST level is 41 feet.

Which ONE of the following describes why Condensate Transfer Flow Control Valve (FV-C-52-130) positioner must be bypassed and operated manually?

a. To satisfy Refuel Water Transfer Pump Interlock

b. To satisfy Suppression Pool Cleanup Pump Interlock

c. To bypass low CST level

d. To bypass low RWST level

ANSWER : B

Reference: 86S

NO.: 152 REV.: 4 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/22/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295007AA1.02 TAXONOMY NO.:
LESSON PLANS: LOT0340.15
:
CATEGORY: 96
SYSTEMS: HPCI

QUESTION :

*** SRO ONLY ***

Unit 1 has scrammed and the MSIV's are closed. HPCI is running with the flow controller in "AUTOMATIC" at 3000 gpm with reactor pressure at 1100 psig. Which ONE of the following will have the greatest impact on reducing reactor pressure?

a. Full flow test with the HV-55-1F008 full open

b. Injection via the HV-55-1F105 (Main Feed A) only

c. Injection via the HV-55-1F006 (Core Spray B) only

d. HPCI operation on min flow

ANSWER : D

Reference: 87S

NO.: 251 REV.: 2 TYPE: MC ENTERED BY: PMO DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295003AA2.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: E

QUESTION :

*** SRO ONLY ***

Unit 1 has lost all offsite power and all four (4) diesels have failed to start. Which ONE of the following instruments is providing accurate indication of reactor level?

a. Fuel Zone Indicator LI-42-1R610 "A ECCS"

b. Wide Range Recorder XR-42-1R023B "B ECCS"

c. Shutdown Range Indicator LI-42-1R605

d. PMS Critical Plant Parameters Display of Reactor Level

ANSWER : A

Reference: 88S

NO.: 268 REV.: 2 TYPE: MC ENTERED BY: WMT DATE ENTERED: 12/06/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295017SG.10 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OT

QUESTION :

*** SRO ONLY ***

Unit 2 is at 50% power with Drywell Venting in progress. The South Stack Hi Radiation alarm is received. Which ONE of the actions below must be taken?

a. Enter T-104

b. Shutdown the reactor

c. Reduce the vent rate

d. Terminate venting

ANSWER : D

Reference: 89S

NO.: 267 REV.: 3 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295003AK1.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: E10/20

QUESTION :

*** SRO ONLY ***

Unit 2 has experienced a Loss of Offsite Power. All four diesel generators have started and energized their respective busses.

Which ONE of the choices below describes the status of the TECW pumps?

a. At least one pump will auto restart

b. Both pumps will auto restart following shunt trip reset

c. One pump must be manually restarted

d. Neither pump can be started

ANSWER : A

Reference: 90S

NO.: 197 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295016AK2.02 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: RSP

QUESTION :

*** SRO ONLY ***

A fire in the Auxiliary Equipment Room (AER) necessitates Remote Shutdown Panel (RSP) operation of the plant. Several RSP controls are affected by the fire. The CRS directs opening of the HV-51-1F014B ("B" RHR HX INLET) from the MCC cubicle. The OPEN contactor is depressed and it does NOT seal in.

Which ONE of the following describes the required response?

a. The valve is already open and the contactor should be released immediately

b. The valve is stuck in the mid-position and can only be aligned using the hand wheel

c. Contactor operation of the valve is not possible due to a failed seal-in relay

d. More torque is required to open the valve, depress the OPEN contactor and hold it depressed for several seconds

ANSWER : A

Reference: 91S

NO.: 269 REV.: 1 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/05/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295017AK2.09 TAXONOMY NO.:
LESSON PLANS: LOT0500.04
:
CATEGORY: 96
SYSTEMS: ON

QUESTION :

*** SRO ONLY ***

Unit 1 is starting up with power in the intermediate range. The "1B" RWCU filter/demin is placed in service and shortly thereafter Main Steam Line Radiation Levels increase to three times normal full power background.

Which ONE of the following actions would result?

a. MSIV's would close

b. Group VI CASS isolation signal

c. Mechanical vacuum pump would trip

d. SJAE First Stage Air Valves would close

ANSWER : C

Reference: 92S

NO.: 172 REV.: 2 TYPE: MC ENTERED BY: DCW DATE ENTERED: 11/25/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294024EA1.11 TAXONOMY NO.:
LESSON PLANS: LOT0370.10
:
CATEGORY: 96
SYSTEMS: RHR

QUESTION :

*** SRO ONLY ***

As the ACRS you note the PRO is having difficulty with drywell sprays. The following indications exist:

Critical Plant Parameters on PMS indicate:
Drywell Pressure 25 psig
Drywell Temperature 300°F

10C601 Indications are:
Drywell Pressure 25 psig
TR57-122 Drywell Temperature 265°F

1B RHR Flow is 8200 gpm
HV51-1F017B red, green and white lights lit
HV51-1F024B red, green and white lights lit
HV51-1F021B red light lit
HV51-1F016B green light lit

What action should be recommended to the CRS?

a. Division II flowpath is NOT sensing a LOCA signal. Initiate a LOCA signal using the 1B Core Spray initiation pb.

b. HV51-1F017B did NOT shut. Shut HV51-1F024B, secure the 1B RHR Pump, then shut HV51-1F017B and realign for drywell sprays.

c. Conditions are "unsafe" to spray the drywell. Recind the order for drywell sprays.

d. Valve interlock is preventing opening of spray valves. Shut HV51-1F021B, open HV51-1F016B, then open HV51-1F021B.

ANSWER : B

Reference: 93S

NO.: 194 REV.: 0 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295016AA1.08 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: RSP

QUESTION :

*** SRO ONLY ***

A fire in the Main Control Room has caused the shift to evacuate the room and man the Remote Shutdown Panel (RSP). If all of the Emergency Transfer Switches are in EMERGENCY, which ONE of the following describes SRV availability? Assume the Auxiliary Equipment Room (AER) remains unaffected by the fire.

a. All 5 ADS valves can be operated from the RSP

b. 3 of the 5 ADS valves can be operated from the RSP, no SRV's can be operated from the AER

c. 3 SRV's can be operated from the RSP and 5 ADS valves can be operated from the AER

d. Only 3 non-ADS SRV's can be operated from the RSP, none can be operated from the AER.

ANSWER : C

Reference: 94S

NO.: 174 REV.: 2 TYPE: MC ENTERED BY: DCW DATE ENTERED. 11/25/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295026EK1.. TAXONOMY NO.:
LESSON PLANS: LOT0370.10
:
CATEGORY: 96
SYSTEMS: RHR TRIP T-102

QUESTION :

*** SRO ONLY ***

Unit 2 is in OPCON 3 at 314 psig

2E SRV tailpipe temperature is 320°F

SE-4 "Flooding" is being executed

REACTOR ENCL FLOOR DRAIN Sump HI-HI LEVEL annunciator lit

Suppression Pool Water Temp is 170°F and slowly increasing at 1°F/2 hours

Suppression Pool Level is 18.2 feet and slowly lowering at 2 inches/hour.

"2A" loop of pool cooling is in service at 6000 gpm with HV51-2F024A full OPEN.

Which item below describes expected plant response and action(s) to be taken?

a. HPCI suction will auto swap to the CST; continue plant depressurization to 200 psig in the next 24 hours.

b. Direct pressurization of the pool air space from the 2E SRV will begin at 18' pool level; an Emergency Blowdown is required.

c. Pool cooling flowrate will slowly lower; ON-110, "Loss of Primary Cntmt" should be executed, and cooldown continued.

d. 2A RHR will auto trip when pool level reaches 13.5 feet; cooldown rate greater than 100°F/hr is required immediately.

ANSWER :

Referenc 95S T102 TS 3.6.1

NO.: 150 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/21/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 295038EK2.01 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: T-104

QUESTION :

*** SRO ONLY ***

T-104 has been entered due to a North Stack Hi Hi Radiation Alarm. All building HVAC systems are operating normally with the exception of Unit 1 TEHVAC, which has been shutdown due to fan control problems.

Which ONE of the following ventilation systems is the source of North Stack Hi Hi Radiation?

a. Radwaste

b. Unit 1 RE

c. RF Floor

d. Hot Maintenance Shop

ANSWER : A

Reference: 96S

NO.: 225 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 12/03/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001K1.16 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OM

QUESTION :

*** SRO ONLY ***

Complete the following statement concerning the Fire Impairment Log:

"The log is maintained _______ during operation, and during outages is maintained _______."

a. at the CRS console/in the ACRS office

b. at the CRS console/in the Clearance office

c. in the ACRS office/in the SM - SDA office

d. in the ACRS office/in the Clearance office

ANSWER : D

Reference: 97S

NO.: 277 REV.: 2 TYPE: MC ENTERED BY: DCW DATE ENTERED: 12/06/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001A1.01 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OM

QUESTION :

*** SRO ONLY ***

You have been directed to spray the drywell in accordance with T-225. Which ONE of the following describes the MINIMUM requirements for T-225 procedure use?

a. The procedure must be in hand and each step must be performed in the sequence specified.

b. The procedure should be near the 20C601 panel and must be referred to after drywell sprays are initiated.

c. If you are familiar with the procedure, you don't have to refer to it until after conditions stabilize.

d. The procedure should be in hand, steps do not have to be performed in the sequence specified.

ANSWER : A

Reference: 98S

NO.: 200 REV.: 2 TYPE: MC ENTERED BY: MGR DATE ENTERED: 11/26/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001A1.10 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OM

QUESTION :

*** SRO ONLY ***

You are the CRS. Unit 1 is in OPCON 1. The RCIC Steam Supply Outboard Isolation Valve (HV-49-2F008) has developed a packing leak which cannot be corrected by normal packing adjustment. Complete the following:

The valve can be backseated _______ and shall be considered _______ with respect to automatic isolation capabilities.

a. from the MCR, operable

b. from the MCR, inoperable

c. using the valve handwheel, operable

d. using the valve handwheel, inoperable

ANSWER : D

Reference: 99S

NO.: 146 REV.: 2 TYPE: MC ENTERED BY: DCW DATE ENTERED: 11/20/96
DIFFICULTY: 0 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:
TASK NUMBER: SKA NO.: 294001A1.03 TAXONOMY NO.:
LESSON PLANS:
:
CATEGORY: 96
SYSTEMS: OM

QUESTION :

*** SRO ONLY ***

The unit is in an outage. All available operators are assigned tasks. Several System Managers (non-Operators) are requesting permission to operate equipment. The CRS can authorize the System Managers to perform all of the following EXCEPT:

a. Start and Stop the "A" RFP Emergency Lube Oil Pump for direction of rotation verification.

b. Start "2B" DW chiller as part of a Special Test procedure run by System Managers.

c. Stroke the HPCI Pump suction valve from the CST open and closed per an approved TCF.

d. Start an Emergency Diesel Generator locally as part of a PMT during an overhaul.

ANSWER : D

Reference: #100S