Draft Submittal

(Pink Paper)

1. Administrative Questions/JPMs
2. In-plant JPMs
3. Control Room JPMs (simulator JPMs)
4. Administrative Topics Outline ES-301-1
5. Control Room Systems and Facility Walk-Through Test Outline ES-301-2

SHEARON HARRIS
EXAM 2002-301

50-400
AUGUST 26 - 29, 2002

Facility:	HARRIS	Date of Examination:	26-Aug-02
Examination Level:	RO	Operating Test Number:	

	Administrative *Topic/Subject* Description	Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative *Questions* (KA #)
A.1	CONDUCT OF OPERATIONS	Determine Rod Misalignment Using Thermocouples (AOP-001) (2.1.19)
		Perform a Manual Power Range Heat Balance Calculation (OST-1204) (2.1.25)
A.2	EQUIPMENT CONTROL	Review an Equipment Clearance (OPS-NGGC-1301) (2.2.13)
A.3	RADIATION CONTROL	Perform Licensed Operator Actions to Establish a Liquid Waste Release (2.3.11)
A.4	EMERGENCY PLAN	Activate the Emergency Response Organization - Dialogic System (PEP-310) (2.4.43)

Facility:	HARRIS	Date of Examination:	26-Aug-02
Examination Level:	SRO	Operating Test Number:	

	Administrative Topic/Subject Description	Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions (KA #)
A.1	CONDUCT OF OPERATIONS	Change the Dedicated SPDS Screen Location (OP-163) (2.1.19)
		Perform a Manual Power Range Heat Balance Calculation (OST-1204) (2.1.25)
A.2	EQUIPMENT CONTROL	Review an Equipment Clearance (OPS-NGGC-1301) (2.2.13)
A.3	RADIATION CONTROL	Question Topic - License Requirements for Conducting a Waste Release with Inoperable Instrumentation and Administrative Controls Ensuring Requirements Met (2.3.6) Question Topic - Selection Process for Individuals Performing Emergency Entries into Radiation Fields Resulting in Exceeding Permissible Exposure Limits (2.3.4)
A.4	EMERGENCY PLAN	Determine Protective Action Recommendations (PEP-110) (2.4.44)

Facility: HARRIS Date of Examination: 26-Aug-02

Examination Level: RO Operating Test Number: Draft Submittal

B.1 Control Room Systems

System/JPM Title	Type Code*	Safety Function (KA #)
a. Perform Control Rod Exercise Test	DAS	3 (003AA1.05)
b. LOOP While Paralleling EDG from MCB for Testing (OP-155)	NAS	6 (064A4.01)
c. Decreasing CCW Surge Tank Level (AOP-014)	MS	8 (008A2.02)
d. Manually Align Containment Spray (PATH-1)	DASL	5 (026A4.01)
e. Transfer to Hot Leg Recirculation (EPP-011)	DASL	2 (006A4.05)
f. High RCS Pressure While Solid (AOP-019)	MSL	4P (005A2.02)
g. Set High Flux at Shutdown for Source Range Channel (OP-105)	NSL	7 (015A4.02)

B.2 Facility Walk-Through

a. Local Actions for a Dropped Rod Recovery (AOP-001)	DL	1 (003AA1.02)
b. Manually Align Charging Due to a Loss of IA (AOP-017)	DRL	2 (065AA1.02)
c. Start Up a Hydrogen Recombiner (OP-125)	DL	5 (028A4.01)

*Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol Room, (S)imulator, (L)ow-Power, (R)CA

Facility: HARRIS Date of Examination: 26-Aug-02

Examination Level: SRO-U Operating Test Number: Draft Submittal

B.1 Control Room Systems

System/JPM Title	Type Code*	Safety Function (KA #)
a. Perform Control Rod Exercise Test	DAS	3 (003AA1.05)
b. LOOP While Paralleling EDG from MCB for Testing (OP-155)	NAS	6 (064A4.01)
c.		
d.		
e.		
f.		
g.		

B.2 Facility Walk-Through

a. Local Actions for a Dropped Rod Recovery (AOP-001)	DL	1 (003AA1.02)
b. Manually Align Charging Due to a Loss of IA (AOP-017)	DRL	2 (065AA1.02)
c. Start Up a Hydrogen Recombiner (OP-125)	DL	5 (028A4.01)

*Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol Room, (S)imulator, (L)ow-Power, (R)CA

Facility: **HARRIS** Date of Examination: **26-Aug-02**

Examination Level: **SRO-I** Operating Test Number: Draft Submittal

B.1 Control Room Systems

System/JPM Title	Type Code*	Safety Function (KA #)
a. Perform Control Rod Exercise Test	DAS	(3) (003AA1.05)
b. LOOP While Paralleling EDG from MCB for Testing (OP-155)	NAS	6 (064A4.01)
c. Decreasing CCW Surge Tank Level (AOP-014)	MS	8 (008A2.02)
d. Manually Align Containment Spray (PATH-1)	DASL	5 (026A4.01)
e. Transfer to Hot Leg Recirculation (EPP-011)	DASL	2 (006A4.05)
f. Start an RCP Following Maintenance (OP-100)	DSL	4P (003A4.06)
g. Power Range NI Gain Adjustment (OP-105)	NS	7 (015A4.02)

B.2 Facility Walk-Through

a. Local Actions for a Dropped Rod Recovery (AOP-001)	DL	1 (003AA1.02)
b. Manually Align Charging Due to a Loss of IA (AOP-017)	DRL	2 (065AA1.02)
c. Start Up a Hydrogen Recombiner (OP-125)	DL	5 (028A4.01)

*Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol Room, (S)imulator, (L)ow-Power, (R)CA

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM SRO-A.1.1

Perform Review of Daily Surveillance Requirements Log

CANDIDATE: _____

EXAMINER: _____

2:30pm 3:45pm

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

TASK: Perform Review of Daily Surveillance Requirements Log

ALTERNATE PATH: None

FACILITY JPM NUMBER: NEW

KA: 2.1.18 IMPORTANCE: SRO 3.0 RO NA

KA STATEMENT: Ability to make accurate, clear and concise logs, regards, status boards, and reports.

TASK STANDARD: Four of five (4/5) errors on attached log sheet are identified.

PREFERRED EVALUATION LOCATION: SIMULATOR ___ IN PLANT ___

PREFERRED EVALUATION METHOD: PERFORM ___ SIMULATE ___

REFERENCES: OST-1021, Daily Surveillance Requirements, Daily Interval, Mode 1 and 2

VALIDATION TIME: 15 MINUTES TIME CRITICAL: No

CANDIDATE: _____

START TIME: _____ FINISH TIME: _____

PERFORMANCE TIME: _____ MINUTES

PERFORMANCE RATING: SAT _____ UNSAT _____

COMMENTS: _____

_____

_____

_____

EXAMINER: _____ _____
Signature Date

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

- Complete OST-1021, Attachment 4, for the 0300 readings using values expected at 100% power.
- Substitute the following incorrect data:
  - Accumulator CLAB Previous Day Level @ 68% (both 924 and 926) with 0300 readings at 78% and 79%, while indicating sampling is NOT required.
  - RWST Level Channel 993 @ 91%.
  - Pressurizer Pressure channels 455 @ 2210 psig, 456 @ 1960 psig, 457 @ 2230 psig while indicating acceptance criteria is met.
  - Containment Temperature channel TCV97540 as "NA", 7542 @ 121°F, 7541 @ 116°F while indicating acceptance criteria is met.
  - EDG Room Temperature channel TDG6903A @ @ 118°F and TDG6903B @ 121°F

OST-1021, "Daily Surveillance Requirements, Daily Interval, Mode 1 and 2," Attachment 4, "Daily Surveillance Requirements Log"

READ TO OPERATOR

INSTRUCTIONS TO CANDIDATE:

I will explain the initial conditions and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed or asked by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task, return the handout sheet I provide you.

INITIAL CONDITIONS:

The Daily Surveillance Logs for 0300 have been completed.

INITIATING CUE(S):

You are to review the logs, noting all errors.

START TIME: _____

*** DENOTES CRITICAL STEP**

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
1	NA	Obtains logs	Obtains logs from examiner		
		CUE: PROVIDE COMPLETED SET OF 0300 LOGS TO CANDIDATE.		NOTE: Only those items in the logs which are incorrect are identified.	
***2**	**Attach 4 Sheet 1**	**Cold Leg Accumulator CLA B requires sampling due to increase in level of > 9%**	**Identifies that level has increased more than 9% and requires sampling**	Critical to identify error that sampling is required.	
***3**	**Attach 4 Sheet 2**	**RWST Level Channel 993 is below minimum required level of 92%**	**Identifies that level is below minimum required**	Critical to identify that level is below minimum required.	
***4**	**Attach 4 Sheet 3**	**Pressurizer Pressure does not meet acceptance criteria due to pressure on one of the only two operable channels (PT-455) being < 2220 psig**	**Determines average pressure is acceptable, but acceptance criteria not met due to one of the only two operable channels being < 2220 psig**	Critical to identify that with only two channels operable, both are required to be $\geq$ 2220 psig.	
***5**	**Attach 4 Sheet 8**	**Containment Temperature Channel TI-7542 exceeds limit of 120°F**	**Identifies that temperature exceeds maximum limit**	Critical to identify that temperature is above maximum allowed.	
***6**	**Attach 4 Sheet 10**	**Diesel Generator Room 261 temperature TDG6903B exceeds limit of 120°F**	**Identifies that temperature exceeds maximum limit**	Critical to identify that temperature is above maximum allowed.	
		TASK COMPLETE			

STOP TIME: _____

Include copy of COMPLETED OST-1021 LOG SHEETS here, ensuring errors are included as directed in setup instructions.

Daily Surveillance Requirements Log

TECH SPEC	4.2.5.1; 4.3.1.1.9, 10; 4.3.2.1.1d, 3a3, 3c3, 5c, 6d						
PARAMETER	PRESSURIZER PRESSURE						
INSTRUMENT (MCB OR ERFIS)	PRC0457 PI-457	PRC0456 PI-456	PRC0455 PI-455	CALCULATION COMPLETED	INDEPENDENT VERIFICATION COMPLETED	ACCEPTANCE CRITERIA MET	N/A
ACCEPTANCE CRITERIA	SEE BELOW			N/A	N/A	N/A	CHANNEL CHECK
MODE	1						1, 2, 3
0300	2230	1960	2210	B	✓	(B)	(B)
(0900)		N/A					
1500							
2100							

INSTRUCTIONS

NOTE: · Calculations must be done with either the MCB Indicators OR ERFIS indications, NOT a combination.

· If all operable channels are greater than or equal to the acceptance criteria, calculations are not required.

CALCULATIONS FOR PRESSURIZER PRESSURE

0300: 2230 (PRC0457 PI-457) + ~~1960~~ N/A (PRC0456 PI-456) + 2210 (PRC0455 PI-455) = ~~4440~~ 6400 ÷ (# Operable Channels used Normally 3) = ~~2220~~ 2133 (PRESSURIZER PRESSURE)

0900: _____ (PRC0457 PI-457) + N/A (PRC0456 PI-456) + _____ (PRC0455 PI-455) = _____ ÷ (# Operable Channels used Normally 3) = _____ (PRESSURIZER PRESSURE)

1500: _____ (PRC0457 PI-457) + _____ (PRC0456 PI-456) + _____ (PRC0455 PI-455) = _____ ÷ (# Operable Channels used Normally 3) = _____ (PRESSURIZER PRESSURE)

2100: _____ (PRC0457 PI-457) + _____ (PRC0456 PI-456) + _____ (PRC0455 PI-455) = _____ ÷ (# Operable Channels used Normally 3) = _____ (PRESSURIZER PRESSURE)

ACCEPTANCE CRITERIA FOR PRESSURIZER PRESSURE (must meet one of the following):

(1.) Average of operable MCB indicator channels greater than or equal to 2205 psig.

(2.) Average of operable ERFIS points greater than or equal to 2202 psig.

(3.) If three MCB indicators are not available, then the lowest channel should be greater than or equal to 2220 psig.

4.✓ If three ERFIS points are not available, then the lowest channel should be greater than or equal to 2211 psig.

Daily Surveillance Requirements Log

TECH SPEC	4.2.5.1; 4.3.1.1.9, 10; 4.3.2.1.1d, 3a3, 3c3, 5c, 6d						
PARAMETER	PRESSURIZER PRESSURE						
INSTRUMENT (MCB OR ERFIS)	PRC0457 PI-457	PRC0456 PI-456	PRC0455 PI-455	CALCULATION COMPLETED	INDEPENDENT VERIFICATION COMPLETED	ACCEPTANCE CRITERIA MET	N/A
ACCEPTANCE CRITERIA	SEE BELOW			N/A	N/A	N/A	CHANNEL CHECK
MODE	NA			1			1, 2, 3
0300	2230	NA	2210	B	J	B	B
0900							
1500							
2100							

INSTRUCTIONS

NOTE: · Calculations must be done with either the MCB Indicators OR ERFIS indications, NOT a combination.

· If all operable channels are greater than or equal to the acceptance criteria, calculations are not required.

CALCULATIONS FOR PRESSURIZER PRESSURE

0300: 2230 (PRC0457 PI-457) + NA (PRC0456 PI-456) + 2210 (PRC0455 PI-455) = 4440 ÷(# Operable Channels used Normally 3) = 2220 PRESSURIZER PRESSURE

0900: _____ (PRC0457 PI-457) + _____ (PRC0456 PI-456) + _____ (PRC0455 PI-455) = _____ ÷(# Operable Channels used Normally 3) = _____ PRESSURIZER PRESSURE

1500: _____ (PRC0457 PI-457) + _____ (PRC0456 PI-456) + _____ (PRC0455 PI-455) = _____ ÷(# Operable Channels used Normally 3) = _____ PRESSURIZER PRESSURE

2100: _____ (PRC0457 PI-457) + _____ (PRC0456 PI-456) + _____ (PRC0455 PI-455) = _____ ÷(# Operable Channels used Normally 3) = _____ PRESSURIZER PRESSURE

ACCEPTANCE CRITERIA FOR PRESSURIZER PRESSURE (must meet one of the following):

1. Average of operable MCB indicator channels greater than or equal to 2205 psig.

2. Average of operable ERFIS points greater than or equal to 2202 psig.

3. If three MCB indicators are not available, then the lowest channel should be greater than or equal to 2220 psig.

4. If three ERFIS points are not available, then the lowest channel should be greater than or equal to 2211 psig.

Daily Surveillance Requirements Log

TECH SPEC	4.2.5.1; 4.3.1.1.9, 10; 4.3.2.1.1d, 3a3, 3c3, 5c, 6d						
PARAMETER	PRESSURIZER PRESSURE						
INSTRUMENT (MCB OR ERFIS)	PRC0457 PI-457	PRC0456 PI-456	PRC0455 PI-455	CALCULATION COMPLETED	INDEPENDENT VERIFICATION COMPLETED	ACCEPTANCE CRITERIA MET	N/A
ACCEPTANCE CRITERIA	SEE BELOW			N/A	N/A	N/A	CHANNEL CHECK
MODE	1						1, 2, 3
0300	2230	1960	2210	B	J	B	B
0900							
1500							
2100							

INSTRUCTIONS

NOTE: · Calculations must be done with either the MCB Indicators OR ERFIS indications, NOT a combination.

· If all operable channels are greater than or equal to the acceptance criteria, calculations are not required.

CALCULATIONS FOR PRESSURIZER PRESSURE

0300: 2230 (PRC0457 PI-457) + NA (PRC0456 PI-456) + 2210 (PRC0455 PI-455) = 4440 ÷(# Operable Channels used Normally 3) = 2220 PRESSURIZER PRESSURE

0900: _____ (PRC0457 PI-457) + _____ (PRC0456 PI-456) + _____ (PRC0455 PI-455) = _____ ÷(# Operable Channels used Normally 3) = _____ PRESSURIZER PRESSURE

1500: _____ (PRC0457 PI-457) + _____ (PRC0456 PI-456) + _____ (PRC0455 PI-455) = _____ ÷(# Operable Channels used Normally 3) = _____ PRESSURIZER PRESSURE

2100: _____ (PRC0457 PI-457) + _____ (PRC0456 PI-456) + _____ (PRC0455 PI-455) = _____ ÷(# Operable Channels used Normally 3) = _____ PRESSURIZER PRESSURE

ACCEPTANCE CRITERIA FOR PRESSURIZER PRESSURE (must meet one of the following):

1. Average of operable MCB indicator channels greater than or equal to 2205 psig.

2. Average of operable ERFIS points greater than or equal to 2202 psig.

3. If three MCB indicators are not available, then the lowest channel should be greater than or equal to 2220 psig.

4. If three ERFIS points are not available, then the lowest channel should be greater than or equal to 2211 psig.

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The Daily Surveillance Logs for 0300 have been completed.

INITIATING CUE(S):

You are to review the logs, noting all errors.

Daily Surveillance Requirements Log

TECH SPEC	4.5.1.1.a.1, a.2								
PARAMETER	ECCS ACCUMULATORS								
	CLA A PRESSURE		CLA B PRESSURE		CLA C PRESSURE		ISOLATION VALVES		
INSTRUMENT	PI - 921	PI - 923	PI -925	PI - 927	PI - 929	PI - 931	CLA A 1SI-246	CLA B 1SI-247	CLA C 1SI-248
ACCEPTANCE CRITERIA	Between 585 and 665 psig						OPEN		
MODE	1, 2 AND 3 WITH RCS PRESSURE ABOVE 1000 PSIG								
0300	605	605	605	625	605	610	B	B	B
0900									
1500									
2100									

TECH SPEC	4.5.1.1.a.1, 4.5.1.1. b (partial)								
PARAMETER	ECCS ACCUMULATORS								
	CLA A LEVEL			CLA B LEVEL			CLA C LEVEL		
INSTRUMENT	LI - 920	LI - 922	Sampling Not Required per Att 6	LI - 924	LI - 926	Sampling Not Required per Att 6	LI - 928	LI - 930	Sampling Not Required per Att 6
ACCEPTANCE CRITERIA	between 66 and 96 % indicated level with less than 9% cumulative level increase (excluding makeup from operable RWST) since last satisfactory sample								
MODE	1, 2 AND 3 WITH RCS PRESSURE ABOVE 1000 PSIG								
Previous Days Level	71	72		68	68		74	72	
0300	72	72	B	78	79	B	73	72	B
0900									
1500									
2100									

TECH SPEC	4.4.6.2.1.b						4.3.2.1.1c, 2c, 3a3, 3b3, 3c3, 4c, 5c, 6d, 6g 4.3.3.6.1a; 4.6.1.4				
PARAMETER	CNMT SUMP FLOW MONITORING		SUMP LEAK RATE		CNMT SUMP LEVEL		CONTAINMENT PRESSURE				
INSTRUMENT	ALB 1 6-1	ERFIS	URE 9001	URE 9002	LCT 7161A	LCT 7161B	PI 950	PI 952	PI 951	PI 953	N/A
ACCEPTANCE CRITERIA	NO ALARM	PROGRAM CHECKS PER OP-163	N/A		N/A		LESS THAN 1.6 PSIG				CHANNEL CHECK
MODE	1, 2, 3 and 4						1, 2, 3 and 4				
0300	B	B	0.00	0.16	1.59	1.59	0	0	0	0	B
0900											
1500											
2100											

Daily Surveillance Requirements Log

TECH SPEC	4.1.2.6.a.2; 4.5.4.a.1; 4.3.2.1.7b, 8b; 4.3.3.6.9					4.1.2.6.a.2, a.3		
PARAMETER	RWST LEVEL					BORIC ACID TANK		
INSTRUMENT	LI-990	LI-991	LI-992	LI-993	N/A	LI-106	LI-161.1 SB	TCS7240
ACCEPTANCE CRITERIA	GREATER THAN OR EQUAL TO 92%				CHANNEL CHECK	GREATER THAN OR EQUAL TO 74%		GREATER THAN OR EQUAL TO 65°F
MODE	1, 2, 3, and 4					1, 2, 3 and 4		
0300	97	96	97	91	B	86	86	91
0900								
1500								
2100								

TECH SPEC	4.5.2.a						4.4.9.3
PARAMETER	ECCS VALVE ALIGNMENT						PRZ SPRAY ΔT
INSTRUMENT	1SI-340	1SI-341	1SI-359	1SI-86	1SI-52	1SI-107	TI-123 TI-454.1
ACCEPTANCE CRITERIA	OPEN AND PULLED TO LOCK WITH CONTROL POWER OFF		SHUT AND PULLED TO LOCK WITH CONTROL POWER OFF				LESS THAN OR EQUAL TO 625°F
MODE	1, 2, and 3						DURING AUX SPRAY OPS
0300	B	B	B	B	B	B	NA
0900							
1500							
2100							

TECH SPEC	4.4.3.1; 4.3.1.1.11; 4.3.3.6.5			
PARAMETER	PRESSURIZER LEVEL			
INSTRUMENT	LI-460	LI-461.1	LI-459A.1	N/A
ACCEPTANCE CRITERIA	LESS THAN OR EQUAL TO 90%			CHANNEL CHECK
MODE	1, 2, and 3			1
0300	59	59	57	B
0900				
1500				
2100				

Daily Surveillance Requirements Log

TECH SPEC	4.2.5.1; 4.3.1.1.9, 10; 4.3.2.1.1d, 3a3, 3c3, 5c, 6d						
PARAMETER	PRESSURIZER PRESSURE						
INSTRUMENT (MCB OR ERFIS)	PRC0457 PI-457	PRC0456 PI-456	PRC0455 PI-455	CALCULATION COMPLETED	INDEPENDENT VERIFICATION COMPLETED	ACCEPTANCE CRITERIA MET	N/A
ACCEPTANCE CRITERIA	SEE BELOW			N/A	N/A	N/A	CHANNEL CHECK
MODE	1						1, 2, 3
0300	2230	1960	2210	B	✓	B	B
0900							
1500							
2100							

INSTRUCTIONS

NOTE: · Calculations must be done with either the MCB Indicators OR ERFIS indications, NOT a combination.

· If all operable channels are greater than or equal to the acceptance criteria, calculations are not required.

CALCULATIONS FOR PRESSURIZER PRESSURE

0300: 2230 (PRC0457 PI-457) + NA (PRC0456 PI-456) + 2210 (PRC0455 PI-455) = 4440 ÷(# Operable Channels used Normally 3) = 2220 PRESSURIZER PRESSURE

0900: _____ (PRC0457 PI-457) + _____ (PRC0456 PI-456) + _____ (PRC0455 PI-455) = _____ ÷(# Operable Channels used Normally 3) = _____ PRESSURIZER PRESSURE

1500: _____ (PRC0457 PI-457) + _____ (PRC0456 PI-456) + _____ (PRC0455 PI-455) = _____ ÷(# Operable Channels used Normally 3) = _____ PRESSURIZER PRESSURE

2100: _____ (PRC0457 PI-457) + _____ (PRC0456 PI-456) + _____ (PRC0455 PI-455) = _____ ÷(# Operable Channels used Normally 3) = _____ PRESSURIZER PRESSURE

ACCEPTANCE CRITERIA FOR PRESSURIZER PRESSURE (must meet one of the following):

1. Average of operable MCB indicator channels greater than or equal to 2205 psig.
2. Average of operable ERFIS points greater than or equal to 2202 psig.
3. If three MCB indicators are not available, then the lowest channel should be greater than or equal to 2220 psig.
4. If three ERFIS points are not available, then the lowest channel should be greater than or equal to 2211 psig.

Daily Surveillance Requirements Log

TECH SPEC	4.2.5.1					
PARAMETER	RCS LOOP TAVG					
INSTRUMENT (MCB OR ERFIS)	TRC0412D TI-412D	TRC0422D TI-422D	TRC0432D TI-432D	CALCULATION COMPLETED	INDEPENDENT VERIFICATION COMPLETED	ACCEPTANCE CRITERIA MET
ACCEPTANCE CRITERIA	SEE BELOW			N/A	N/A	N/A
MODE	1					
0300	588.83	588.78	586.62	NA	NA	B
0900						
1500						
2100						

INSTRUCTIONS

NOTE: · Calculations must be done with either the MCB Indicators OR ERFIS indications, NOT a combination.

· If all operable channels are less than or equal to the acceptance criteria, calculations are not required.

CALCULATIONS FOR RCS LOOP TAVG

0300: NA (TRC0412D TI-412D) + _____ (TRC0422D TI-422D) + _____ (TRC0432D TI-432D) = _____ ÷(# Operable Channels used Normally 3) = _____ RCS LOOP TAVG

0900: _____ (TRC0412D TI-412D) + _____ (TRC0422D TI-422D) + _____ (TRC0432D TI-432D) = _____ ÷(# Operable Channels used Normally 3) = _____ RCS LOOP TAVG

1500: _____ (TRC0412D TI-412D) + _____ (TRC0422D TI-422D) + _____ (TRC0432D TI-432D) = _____ ÷(# Operable Channels used Normally 3) = _____ RCS LOOP TAVG

2100: _____ (TRC0412D TI-412D) + _____ (TRC0422D TI-422D) + _____ (TRC0432D TI-432D) = _____ ÷(# Operable Channels used Normally 3) = _____ RCS LOOP TAVG

ACCEPTANCE CRITERIA FOR RCS LOOP TAVG (must meet one of the following):

1. Average of operable MCB indicator channels must be less than or equal to 592.5°F.

2. Average of operable ERFIS points less than or equal to 593.1°F.

3. If three MCB indicators are not available, then the highest channel should be less than or equal to 591.3°F.

4. If three ERFIS points are not available, then the highest channel should be less than or equal to 592.3°F.

Daily Surveillance Requirements Log

TECH SPEC	4.3.2.1		4.4.6.2.1.e	4.3.1.1.7, 8		
PARAMETER	RCS PRESSURE		FLANGE LEAKOFF TEMP	OTΔT	OPΔT	PROTECTION ΔT
INSTRUMENT	PI-403.1	PI-402.1	TI-401	TI-412C, TI-422C, TI-432C	TI-412B, TI-422B, TI-432B	TI-412A, TI-422A, TI-432A
ACCEPTANCE CRITERIA	CHANNEL CHECK		N/A	CHANNEL CHECK		
MODE	1, 2, 3 and 4		1, 2, 3 and 4	1, 2		
0300	B	B	110	B	B	B
0900						
1500						
2100						

INSTRUCTION

If RCS flow acceptance criteria is not met, perform EST-708, RCS Flow Determination.

TECH SPEC	4.2.5.1								
PARAMETER	RCS LOOP FLOWS								
INSTRUMENT	FRC0414 FI-414	FRC0415 FI-415	FRC0416 FI-416	FRC0424 FI-424	FRC0425 FI-425	FRC0426 FI-426	FRC0434 FI-434	FRC0435 FI-435	FRC0436 FI-436
ACCEPTANCE CRITERIA	≥ 98.3%			≥ 98.3%			≥ 98.3%		
MODE	1			1			1		
0300	100.52	100.46	100.78	100.63	100.74	100.79	100.56	100.02	100.91
0900									
1500									
2100									

Daily Surveillance Requirements Log

TECH SPEC	4.4.1.1; 4.3.1.1.12									
PARAMETER	RCS LOOP FLOWS									
INSTRUMENT	FRC0414 FI-414	FRC0415 FI-415	FRC0416 FI-416	RCP A	N/A	FRC0424 FI-424	FRC0425 FI-425	FRC0426 FI-426	RCP B	N/A
ACCEPTANCE CRITERIA	POSITIVE INDICATION OF FLOW WITH RCP RUNNING INDICATION				CHANNEL CHECK	POSITIVE INDICATION OF FLOW WITH RCP RUNNING INDICATION				CHANNEL CHECK
MODE	1, 2				1	1, 2				1
0300	B	B	B	B	B	B	B	B	B	B
0900										
1500										
2100										

TECH SPEC	4.4.1.1; 4.3.1.1.12					4.3.1.1.2a, 2b, 5, 6		
PARAMETER	RCS LOOP FLOWS					POWER RANGE	INTERMEDIATE RANGE	SOURCE RANGE
INSTRUMENT	FRC0434 FI-434	FRC0435 FI-435	FRC0436 FI-436	RCP C	N/A	NI-41, NI-42 NI-43, NI-44	NI-35 NI-36	NI-31 NI-32
ACCEPTANCE CRITERIA	POSITIVE INDICATION OF FLOW WITH RCP RUNNING INDICATION				CHANNEL CHECK	CHANNEL CHECK		
MODE	1, 2				1	1, 2	1 (<P-10), 2	2 (<P-6), 3, 4, 5
0300	B	B	B	B	B	B	NA	NA
0900								
1500								
2100								

TECH SPEC	4.3.2.1.1e, 3a3, 3c3, 4d, 5c, 6d, 6g 4.3.3.6.6			4.3.1.1.14					
PARAMETER	STEAM LINE PRESSURE			SG FEED FLOW			SG STEAM FLOW		
INSTRUMENT	PI-474.1, PI-475, PI-476	PI-484.1 PI-485, PI-486	PI-494 PI-495, PI-496.1	FI-476 FI-477	FI-486 FI-487	FI-496 FI-497	FI-474 FI-475	FI-484 FI-485	FI-494 FI-495
ACCEPTANCE CRITERIA	CHANNEL CHECK			CHANNEL CHECK					
MODE	1, 2, 3 and 4			1, 2					
0300	B	B	B	B	B	B	B	B	B
0900									
1500									
2100									

Daily Surveillance Requirements Log

TECH SPEC	4.3.1.1.13; 4.3.1.1.14; 4.3.2.1.5b, 6c, 10d; 4.3.3.6.7			4.7.1.3.1	
PARAMETER	SG LEVEL			CST LEVEL	
INSTRUMENT	LI-473, LI-474 LI-475, LI-476	LI-483, LI-484 LI-485, LI-486	LI-493, LI-494 LI-495, LI-496	LI-9010A1 SA	LI-9010B1 SB
ACCEPTANCE CRITERIA	CHANNEL CHECK			GREATER THAN OR EQUAL TO 62%	
MODE	1, 2, and 3			1, 2, and 3	
0300	B	B	B	86	87
0900					
1500					
2100					

TECH SPEC	4.7.1.3.2			
PARAMETER	ESW TO AFW			
INSTRUMENT	1SW-121 1SW-123	1SW-124 1SW-126	1SW-127 1SW-129	1SW-130 1SW-132
ACCEPTANCE CRITERIA	OPEN (only when supplying AFW pumps)			
MODE	1, 2, and 3			
0300	NA	NA	NA	NA
0900				
1500				
2100				

Daily Surveillance Requirements Log

INSTRUCTIONS

1. ERFIS is the preferred source for verifying CNTMT AVG TEMP.
2. Verify TCV97540 computer point quality code is acceptable. If acceptable, record the ERFIS value for CNTMT AVG TEMP and verify less than or equal to 120°F.
3. If computer point TCV97540 is not available, verify both MCB indicators for CNTMT AVG TEMP less than or equal to 120°F.

TECH SPEC	PLP-114		4.6.1.5	N/A		4.6.1.4		PLP-114	
PARAMETER	A EDG ELEC ROOM 261	B EDG ELEC ROOM 261	CNMT AVG TEMP			CONTAINMENT PRESSURE		CONTROL ROOM ENVELOPE 305	
INSTRUMENT	ALB 27/1-3		TCV97540	TI-7542 SA	TI-7541 SB	PDI-7680 A SA	PDI-7680 B SB	TI-7837 A1SA	TI-7837 B1SB
ACCEPTANCE CRITERIA	NO ALARM (≤ 116°F) LOCAL TEMP IS NEEDED IF ALARM IS PRESENT		LESS THAN OR EQUAL TO 120°F			GREATER THAN -1.0 INWG		LESS THAN OR EQUAL TO 85°F	
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE		1, 2, 3, and 4			1, 2, 3, and 4		WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE	
0300	B	B	NA	121	116	-0.3	-0.4	70	71
0900									
1500									
2100									

TECH SPEC	PLP-114						
PARAMETER	FHB EMER EXH AREA		ROD CNTRL CAB AREA 305	STEAM TUNNEL	SA ELECT PENET AREA 261	SB ELECT PENE AREA 261	1A35SA, 1B35SB 261
INSTRUMENT	TI-6537A1SA	TI-6537B1SB	ALB 23/3-5	ALB 23/2-11	ALB 23/2-8		ALB 23/2-5
ACCEPTANCE CRITERIA	LESS THAN OR EQUAL TO 104°F		NO ALARM (≤ 104°F)	NO ALARM (≤ 122°F)	NO ALARM (LESS THAN OR EQUAL TO 104°F)		
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE		WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE (LOCAL TEMP MUST BE TAKEN IF ALARM IS PRESENT)				
0300	76	78	B	B	B	B	B
0900							
1500							
2100							

Daily Surveillance Requirements Log

TECH SPEC	PLP-114						
PARAMETER	CHILLER, AFW PIPE & VALVE AREA 261	CCW PUMPS & HX AFW PUMPS 236	A-SA CSIP ROOM 236	B-SB CSIP ROOM 236	1C-SAB CSIP ROOM 236	SW BSTR B-SB PUMP 236	MECH & ELEC PENET AREA 236
INSTRUMENT	ALB 23/2-6 ALB 23/2-7	ALB 23/1-6 ALB 23/1-7	ALB 23/1-5		ALB 23/1-4	ALB 23/1-11	ALB 23/2-9 ALB 23/2-10
ACCEPTANCE CRITERIA	NO ALARM (LESS THAN OR EQUAL TO 104°F)						
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE (LOCAL TEMP MUST BE TAKEN IF ALARM IS PRESENT)						
0300	B	B	B	B	B	B	B
0900							
1500							
2100							

TECH SPEC / COMMITMENT	PLP-114				4.9.11			
PARAMETER	CSAT & HVAC EQUIP RM 216	WPB HVAC EQUIP RM 236	A-SA CS, RHR, HVAC 190	B-SB CS, RHR, HVAC 190	FUEL POOLS			
					SPENT FP	NEW FP	SFP C	SFP D
INSTRUMENT	ALB 23/1-8	ALB 23/1-9	ALB 23/1-10		ALB 23/4-17	ALB 23/5-17	ALB 23/4-18	ALB 23/5-18
ACCEPTANCE CRITERIA	NO ALARM (LESS THAN OR EQUAL TO 104°F)				NO ALARM (GREATER THAN 23 FT)			
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE (LOCAL TEMP MUST BE TAKEN IF ALARM IS PRESENT)				WHEN IRRADIATED FUEL IS IN THE POOL (LOCAL LEVEL MUST BE TAKEN IF ALARM IS PRESENT)			
0300	B	B	B	B	B	B	B	B
0900								
1500								
2100								

Daily Surveillance Requirements Log

TECH SPEC / COMMITMENT	ESR 97-00272	ESR 95-00425		ESR 97-00272
PARAMETER	SPENT FUEL POOL HIGH TEMPERATURE ALARM	SPENT FUEL POOL HIGH TEMPERATURE ALARM		NEW FUEL POOL HIGH TEMPERATURE ALARM
INSTRUMENT	ALB 23/4-16	ALB 23/4-15	ALB 23/5-15	ALB 23/5-16
ACCEPTANCE CRITERIA	NO ALARM	NO ALARM		NO ALARM
MODE	1,2,3,4,5 and 6	1, 2, 3, 4, 5 and 6		1,2,3,4,5 and 6
0300	B	B	B	B
0900				
1500				
2100				

TECH SPEC	PLP-114					
PARAMETER	ESW ELEC EQUIP ROOM 261		ESW PUMP ROOM 261		EDG ROOM 261	
	A-SA	B-SB	A-SA	B-SB	A-SA	B-SB
INSTRUMENT	TEV6588A	TEV6588B	TEV6592A	TEV6592B	TDG6903A	TDG6903B
ACCEPTANCE CRITERIA	LESS THAN OR EQUAL TO 116°F		LESS THAN OR EQUAL TO 122°F		LESS THAN OR EQUAL TO 120°F	
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE					
0300	84	86	86	85	118	121
0900						
1500						
2100						

Daily Surveillance Requirements Log

NOTE 1: If a reservoir level computer point is bad, manual reservoir level determination can be performed per OP-163.

NOTE 2: If a reservoir temperature computer point is bad, manual reservoir temperature readings can be performed per APP-ALB-002-7-5.

INSTRUCTION

1. Due to a 3°F instrument inaccuracy associated with the permanently installed reservoir TSWs, if TSW9114/TSW9115 indicate ≥91°F, obtain local temperature readings per APP-ALB-002-7-5.

TECH SPEC	4.1.2.6b 4.5.4.b	4.7.5					
PARAMETER	RWST TEMP	AUX RSVR LEVEL		AUX RSVR TEMP	MAIN RSVR LEVEL		MAIN RSVR TEMP
INSTRUMENT	TCT7110	LSC8752A	LSC8752B	TSW9114	LSC8750A	LSC8750B	TSW9115
ACCEPTANCE CRITERIA	≥ 40°F AND ≤ 125°F	GREATER THAN OR EQUAL TO 250 FT NOTE 1		≤ 94°F NOTE 2	GREATER THAN OR EQUAL TO 215 FT NOTE 1		≤ 94°F NOTE 2
MODE	1, 2, 3 and 4						
0300	74.0	251.0	251.0	74.43	220.0	220.0	74.4
0900							
1500							
2100							

INSTRUCTION

1. The ECCS leakage outside RABEES reading is only required every 72 hours. Perform on Sunday, Wednesday, and Friday (mark as N/A on other days).

2. If any ECCS leakage outside RABEES is measured, record the cumulative leakrate on Attachment 7, along with the locations leaking.

TECH SPEC	PLP-114
PARAMETER	ECCS leakage outside RABEES
INSTRUMENT	N/A
ACCEPTANCE CRITERIA	LESS THAN 2 GPH (125 cc/min) cumulative
MODE	1, 2, 3 and 4
0300	
0900	
1500	
2100	

Daily Surveillance Requirements Log

NOTE 1:

- Meteorological Channel check includes: (1) Initialing for a acceptable quality code if using ERFIS or verifying data quality is consistent with actual weather conditions if using a Personal Computer(PC) to access the meteorological tower, and (2) Recording present values and verifying trend appears normal.
- During calm wind conditions (approximately 2 mph or less) it is normal to see disagreement between the upper and lower wind direction indicators. At times the vanes may actually rotate in opposite directions.
- The following shall be used for performing the daily channel check of the meteorological instrumentation channels:
  - On ERFIS observe the points for wind speed, wind direction, and differential temperature.

  OR

  - Using a PC , access the meteorological tower and observe upper and lower wind speed, upper and lower wind direction, and differential temperature (or stability class).

  The meteorological instrumentation should only be considered inoperable if both of the above methods are unavailable.

NOTE 2: MIMS Channel check should include, as a minimum, both a Self Test and an Audio Monitoring Test of all operable channels. (Reference 2.6.0.04)
R

TECH SPEC	PLP-114												PLP-114
PARAMETER	METEOROLOGICAL												MIMS
	LOWER WIND SPEED		UPPER WIND SPEED		LOWER WIND DIRECTION		UPPER WIND DIRECTION		AIR ΔT				
INSTRUMENT	MMT1008		MMT1010		MMT1014		MMT1013		MMT1004		MMT1005		ALL CHANNELS
ACCEPTANCE CRITERIA	CHANNEL CHECK NOTE 1												CHANNEL CHECK NOTE 2
	Value	Init	Value	Init	Value	Init	Value	Init	Value	Init	Value	Init	
MODE	AT ALL TIMES												1, 2
0300	8.30	B	9.60	B	116.10	B	112.60	B	-0.42	B	-0.48	B	B
0900													
1500													
2100													

Daily Surveillance Requirements Log

TECH SPEC	PLP-114						
PARAMETER	EDG HVAC ROOM 280		EDG HVAC ROOM 292		DFOST BLDG 242	TANK AREA 236	
	A-SA	B-SB	A-SA	B-SB			
INSTRUMENT	LOCAL THERMOMETER						
ACCEPTANCE CRITERIA	LESS THAN OR EQUAL TO 118°F		LESS THAN OR EQUAL TO 122°F		LESS THAN OR EQUAL TO 122°F	LESS THAN OR EQUAL TO 104°F	VERIFIED
MODE	WHEN THE EQUIPMENT IN THE AFFECTED AREA IS REQUIRED TO BE OPERABLE						
0300							
0900							
1500							
2100							

INSTRUCTION

1. If battery room temperature is less than 71°F, perform Step 7.0.0.05.

TECH SPEC	PLP-114							4.3.1.1.2.a	
PARAMETER	ELECT PENETRATION AREA 286		SWITCHGEAR ROOM 286		BATTERY ROOM 286		PIC RM 305	OST-1000 or OST-1004	
	A-SA	B-SB	A-SA	B-SB	A-SA	B-SB			
INSTRUMENT	LOCAL THERMOMETER							N/A	
ACCEPTANCE CRITERIA	LESS THAN OR EQUAL TO 104°F		LESS THAN OR EQUAL TO 90°F		≥ 71°F AND ≤ 85°F		LESS THAN OR EQUAL TO 85°F	COMPLETED SAT	VERIFIED
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE							1 above 15% Power	
0300								B	
0900									
1500									
2100									

Daily Surveillance Requirements Log

TECH SPEC	PLP-114						
PARAMETER	E-6 ROOMS 261		AUX TRANSFER PANEL ROOM 286		PIC ROOMS 286		
	A-SA	B-SB	A-SA	B-SB	17, 19	18	
INSTRUMENT	LOCAL THERMOMETER						
ACCEPTANCE CRITERIA	LESS THAN OR EQUAL TO 104°F				LESS THAN OR EQUAL TO 85°F		VERIFIED
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE						
0300							
0900							
1500							
2100							

TECH SPEC	PLP-114			
PARAMETER	ACP 286	AH-15 VENTILATION ROOM	ARP ROOM 305	
INSTRUMENT	LOCAL THERMOMETER			
ACCEPTANCE CRITERIA	LESS THAN OR EQUAL TO 90°F	LESS THAN OR EQUAL TO 104°F	LESS THAN OR EQUAL TO 85°F	VERIFIED
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE			
0300				
0900				
1500				
2100				

Daily Surveillance Requirements Log

NOTE 1: These readings are only required on Sundays. These readings may be marked N/A on other days.

TECH SPEC	4.1.2.2.a				
PARAMETER	VCT VALVE GALLERY	BAT ROOM	BORIC ACID XFER PUMP VALVE GALLERY	EMER BORATION VALVE RM	BORIC ACID XFER PUMP ROOM
INSTRUMENT	LOCAL THERMOMETER				
ACCEPTANCE CRITERIA	GREATER THAN OR EQUAL TO 65°F				
MODE	1, 2 and 3				
0300)					
0900 (NOTE 1)					
1500					
2100					

TECH SPEC	4.1.2.2.a					
PARAMETER	BAT TO CSIP SUCTION HEADER PIPE TEMPERATURE (IF ANY OF THESE INSTRUMENTS FAIL, INITIATE CORRECTIVE ACTION AND NOTE IN COMMENTS SECTION. USE SECONDARY INSTRUMENTS TO SATISFY THE SURVEILLANCE REQUIREMENT)					
INSTRUMENT	HT-18753C C2-1	HT-18753C C2-2	HT-18753B C1-9	HT-18753B C1-13	HT-18753B C2-3	HT-18753B C2-5
ACCEPTANCE CRITERIA	GREATER THAN OR EQUAL TO 65°F					
MODE	1, 2 and 3					
0300						
0900 (NOTE 1)						
1500						
2100						

TECH SPEC	4.1.2.2.a					
PARAMETER	BAT TO CSIP SUCTION HEADER PIPE TEMPERATURE (THESE ARE SECONDARY INSTRUMENTS. THESE SHOULD BE USED WHEN PRIMARY INSTRUMENTS FAIL. N/A IF NOT BEING USED.)					
INSTRUMENT	HT-18753CC C2-1	HT-18753CC C2-2	HT-18753BB C1-9	HT-18753BB C1-13	HT-18753BB C2-3	HT-18753BB C2-5
ACCEPTANCE CRITERIA	GREATER THAN OR EQUAL TO 65°F					
MODE	1, 2 and 3					
0300						
0900 (NOTE 1)						
1500						
2100						

Daily Surveillance Requirements Log

TECH SPEC	4.5.1.1.a.1, a.2								
PARAMETER	ECCS ACCUMULATORS								
	CLA A PRESSURE		CLA B PRESSURE		CLA C PRESSURE		ISOLATION VALVES		
INSTRUMENT	PI - 921	PI - 923	PI -925	PI - 927	PI - 929	PI - 931	CLA A 1SI-246	CLA B 1SI-247	CLA C 1SI-248
ACCEPTANCE CRITERIA	Between 585 and 665 psig						OPEN		
MODE	1, 2 AND 3 WITH RCS PRESSURE ABOVE 1000 PSIG								
0300	605	605	605	625	605	610	B	B	B
0900									
1500									
2100									

TECH SPEC	4.5.1.1.a.1, 4.5.1.1. b (partial)								
PARAMETER	ECCS ACCUMULATORS								
	CLA A LEVEL			CLA B LEVEL			CLA C LEVEL		
INSTRUMENT	LI - 920	LI - 922	Sampling Not Required per Att 6	LI - 924	LI - 926	Sampling Not Required per Att 6	LI - 928	LI - 930	Sampling Not Required per Att 6
ACCEPTANCE CRITERIA	between 66 and 96 % indicated level with less than 9% cumulative level increase (excluding makeup from operable RWST) since last satisfactory sample								
MODE	1, 2 AND 3 WITH RCS PRESSURE ABOVE 1000 PSIG								
Previous Days Level	71	72		68	68		74	72	
0300	72	72	B	78	79	B	73	72	B
0900									
1500									
2100									

TECH SPEC	4.4.6.2.1.b						4.3.2.1.1c, 2c, 3a3, 3b3, 3c3, 4c, 5c, 6d, 6g 4.3.3.6.1a; 4.6.1.4				
PARAMETER	CNMT SUMP FLOW MONITORING		SUMP LEAK RATE		CNMT SUMP LEVEL		CONTAINMENT PRESSURE				
INSTRUMENT	ALB 1 6-1	ERFIS	URE 9001	URE 9002	LCT 7161A	LCT 7161B	PI 950	PI 952	PI 951	PI 953	N/A
ACCEPTANCE CRITERIA	NO ALARM	PROGRAM CHECKS PER OP-163	N/A		N/A		LESS THAN 1.6 PSIG				CHANNEL CHECK
MODE	1, 2, 3 and 4						1, 2, 3 and 4				
0300	B	B	0.00	0.16	1.59	1.59	0	0	0	0	B
0900											
1500											
2100											

Daily Surveillance Requirements Log

TECH SPEC	4.1.2.6.a.2; 4.5.4.a.1; 4.3.2.1.7b, 8b; 4.3.3.6.9					4.1.2.6.a.2, a.3		
PARAMETER	RWST LEVEL					BORIC ACID TANK		
INSTRUMENT	LI-990	LI-991	LI-992	LI-993	N/A	LI-106	LI-161.1 SB	TCS7240
ACCEPTANCE CRITERIA	GREATER THAN OR EQUAL TO 92%				CHANNEL CHECK	GREATER THAN OR EQUAL TO 74%		GREATER THAN OR EQUAL TO 65°F
MODE	1, 2, 3, and 4					1, 2, 3 and 4		
0300	97	96	97	91	B	86	86	91
0900								
1500								
2100								

TECH SPEC	4.5.2.a						4.4.9.3
PARAMETER	ECCS VALVE ALIGNMENT						PRZ SPRAY ΔT
INSTRUMENT	1SI-340	1SI-341	1SI-359	1SI-86	1SI-52	1SI-107	TI-123 TI-454.1
ACCEPTANCE CRITERIA	OPEN AND PULLED TO LOCK WITH CONTROL POWER OFF		SHUT AND PULLED TO LOCK WITH CONTROL POWER OFF				LESS THAN OR EQUAL TO 625°F
MODE	1, 2, and 3						DURING AUX SPRAY OPS
0300	B	B	B	B	B	B	NA
0900							
1500							
2100							

TECH SPEC	4.4.3.1; 4.3.1.1.11; 4.3.3.6.5			
PARAMETER	PRESSURIZER LEVEL			
INSTRUMENT	LI-460	LI-461.1	LI-459A.1	N/A
ACCEPTANCE CRITERIA	LESS THAN OR EQUAL TO 90%			CHANNEL CHECK
MODE	1, 2, and 3			1
0300	59	59	57	B
0900				
1500				
2100				

Daily Surveillance Requirements Log

TECH SPEC	4.2.5.1; 4.3.1.1.9, 10; 4.3.2.1.1d, 3a3, 3c3, 5c, 6d						
PARAMETER	PRESSURIZER PRESSURE						
INSTRUMENT (MCB OR ERFIS)	PRC0457 PI-457	PRC0456 PI-456	PRC0455 PI-455	CALCULATION COMPLETED	INDEPENDENT VERIFICATION COMPLETED	ACCEPTANCE CRITERIA MET	N/A
ACCEPTANCE CRITERIA	SEE BELOW			N/A	N/A	N/A	CHANNEL CHECK
MODE	7220			1			1, 2, 3
0300	2230	~~1960~~ 1960	2210	B	Y	B	B
0900							
1500							
2100							

INSTRUCTIONS

NOTE: · Calculations must be done with either the MCB Indicators OR ERFIS indications, NOT a combination.

· If all operable channels are greater than or equal to the acceptance criteria, calculations are not required.

CALCULATIONS FOR PRESSURIZER PRESSURE

0300: 2230 (PRC0457 PI-457) + NA (PRC0456 PI-456) + 2210 (PRC0455 PI-455) = 4440 ÷(# Operable Channels used Normally 3) = 2220 (PRESSURIZER PRESSURE)

0900: _____ (PRC0457 PI-457) + _____ (PRC0456 PI-456) + _____ (PRC0455 PI-455) = _____ ÷(# Operable Channels used Normally 3) = _____ (PRESSURIZER PRESSURE)

1500: _____ (PRC0457 PI-457) + _____ (PRC0456 PI-456) + _____ (PRC0455 PI-455) = _____ ÷(# Operable Channels used Normally 3) = _____ (PRESSURIZER PRESSURE)

2100: _____ (PRC0457 PI-457) + _____ (PRC0456 PI-456) + _____ (PRC0455 PI-455) = _____ ÷(# Operable Channels used Normally 3) = _____ (PRESSURIZER PRESSURE)

ACCEPTANCE CRITERIA FOR PRESSURIZER PRESSURE (must meet one of the following):

1. Average of operable MCB indicator channels greater than or equal to 2205 psig.
2. Average of operable ERFIS points greater than or equal to 2202 psig.
3. If three MCB indicators are not available, then the lowest channel should be greater than or equal to 2220 psig.
4. If three ERFIS points are not available, then the lowest channel should be greater than or equal to 2211 psig.

Daily Surveillance Requirements Log

TECH SPEC	4.2.5.1					
PARAMETER	RCS LOOP TAVG					
INSTRUMENT (MCB OR ERFIS)	TRC0412D TI-412D	TRC0422D TI-422D	TRC0432D TI-432D	CALCULATION COMPLETED	INDEPENDENT VERIFICATION COMPLETED	ACCEPTANCE CRITERIA MET
ACCEPTANCE CRITERIA	SEE BELOW			N/A	N/A	N/A
MODE	1					
0300	588.83	588.78	588.62	NA	NA	B
0900						
1500						
2100						

INSTRUCTIONS

NOTE: · Calculations must be done with either the MCB Indicators OR ERFIS indications, NOT a combination.

· If all operable channels are less than or equal to the acceptance criteria, calculations are not required.

CALCULATIONS FOR RCS LOOP TAVG

0300: NA (TRC0412D TI-412D) + _____ (TRC0422D TI-422D) + _____ (TRC0432D TI-432D) = _____ ÷(# Operable Channels used Normally 3) = _____ RCS LOOP TAVG

0900: _____ (TRC0412D TI-412D) + _____ (TRC0422D TI-422D) + _____ (TRC0432D TI-432D) = _____ ÷(# Operable Channels used Normally 3) = _____ RCS LOOP TAVG

1500: _____ (TRC0412D TI-412D) + _____ (TRC0422D TI-422D) + _____ (TRC0432D TI-432D) = _____ ÷(# Operable Channels used Normally 3) = _____ RCS LOOP TAVG

2100: _____ (TRC0412D TI-412D) + _____ (TRC0422D TI-422D) + _____ (TRC0432D TI-432D) = _____ ÷(# Operable Channels used Normally 3) = _____ RCS LOOP TAVG

ACCEPTANCE CRITERIA FOR RCS LOOP TAVG (must meet one of the following):

1. Average of operable MCB indicator channels must be less than or equal to 592.5°F.

2. Average of operable ERFIS points less than or equal to 593.1°F.

3. If three MCB indicators are not available, then the highest channel should be less than or equal to 591.3°F.

4. If three ERFIS points are not available, then the highest channel should be less than or equal to 592.3°F.

Daily Surveillance Requirements Log

TECH SPEC	4.3.2.1		4.4.6.2.1.e	4.3.1.1.7, 8		
PARAMETER	RCS PRESSURE		FLANGE LEAKOFF TEMP	OTΔT	OPΔT	PROTECTION ΔT
INSTRUMENT	PI-403.1	PI-402.1	TI-401	TI-412C, TI-422C, TI-432C	TI-412B, TI-422B, TI-432B	TI-412A, TI-422A, TI-432A
ACCEPTANCE CRITERIA	CHANNEL CHECK		N/A	CHANNEL CHECK		
MODE	1, 2, 3 and 4		1, 2, 3 and 4	1, 2		
0300	B	B	110	B	B	B
0900						
1500						
2100						

INSTRUCTION

If RCS flow acceptance criteria is not met, perform EST-708, RCS Flow Determination.

TECH SPEC	4.2.5.1								
PARAMETER	RCS LOOP FLOWS								
INSTRUMENT	FRC0414 FI-414	FRC0415 FI-415	FRC0416 FI-416	FRC0424 FI-424	FRC0425 FI-425	FRC0426 FI-426	FRC0434 FI-434	FRC0435 FI-435	FRC0436 FI-436
ACCEPTANCE CRITERIA	≥ 98.3%			≥ 98.3%			≥ 98.3%		
MODE	1			1			1		
0300	100.52	100.46	100.78	100.63	100.74	100.79	100.56	100.02	100.91
0900									
1500									
2100									

Daily Surveillance Requirements Log

TECH SPEC	4.4.1.1; 4.3.1.1.12									
PARAMETER	RCS LOOP FLOWS									
INSTRUMENT	FRC0414 FI-414	FRC0415 FI-415	FRC0416 FI-416	RCP A	N/A	FRC0424 FI-424	FRC0425 FI-425	FRC0426 FI-426	RCP B	N/A
ACCEPTANCE CRITERIA	POSITIVE INDICATION OF FLOW WITH RCP RUNNING INDICATION				CHANNEL CHECK	POSITIVE INDICATION OF FLOW WITH RCP RUNNING INDICATION				CHANNEL CHECK
MODE	1, 2				1	1, 2				1
0300	B	B	B	B	B	B	B	B	B	B
0900										
1500										
2100										

TECH SPEC	4.4.1.1; 4.3.1.1.12					4.3.1.1.2a, 2b, 5, 6		
PARAMETER	RCS LOOP FLOWS					POWER RANGE	INTERMEDIATE RANGE	SOURCE RANGE
INSTRUMENT	FRC0434 FI-434	FRC0435 FI-435	FRC0436 FI-436	RCP C	N/A	NI-41, NI-42 NI-43, NI-44	NI-35 NI-36	NI-31 NI-32
ACCEPTANCE CRITERIA	POSITIVE INDICATION OF FLOW WITH RCP RUNNING INDICATION				CHANNEL CHECK	CHANNEL CHECK		
MODE	1, 2				1	1, 2	1 (<P-10), 2	2 (<P-6), 3, 4, 5
0300	B	B	B	B	B	B	NA	NA
0900								
1500								
2100								

TECH SPEC	4.3.2.1.1e, 3a3, 3c3, 4d, 5c, 6d, 6g 4.3.3.6.6			4.3.1.1.14					
PARAMETER	STEAM LINE PRESSURE			SG FEED FLOW			SG STEAM FLOW		
INSTRUMENT	PI-474.1, PI-475, PI-476	PI-484.1 PI-485, PI-486	PI-494 PI-495, PI-496.1	FI-476 FI-477	FI-486 FI-487	FI-496 FI-497	FI-474 FI-475	FI-484 FI-485	FI-494 FI-495
ACCEPTANCE CRITERIA	CHANNEL CHECK			CHANNEL CHECK					
MODE	1, 2, 3 and 4			1, 2					
0300	B	B	B	B	B	B	B	B	B
0900									
1500									
2100									

Daily Surveillance Requirements Log

TECH SPEC	4.3.1.1.13; 4.3.1.1.14; 4.3.2.1.5b, 6c, 10d; 4.3.3.6.7			4.7.1.3.1	
PARAMETER	SG LEVEL			CST LEVEL	
INSTRUMENT	LI-473, LI-474 LI-475, LI-476	LI-483, LI-484 LI-485, LI-486	LI-493, LI-494 LI-495, LI-496	LI-9010A1 SA	LI-9010B1 SB
ACCEPTANCE CRITERIA	CHANNEL CHECK			GREATER THAN OR EQUAL TO 62%	
MODE	1, 2, and 3			1, 2, and 3	
0300	B	B	B	86	87
0900					
1500					
2100					

TECH SPEC	4.7.1.3.2			
PARAMETER	ESW TO AFW			
INSTRUMENT	1SW-121 1SW-123	1SW-124 1SW-126	1SW-127 1SW-129	1SW-130 1SW-132
ACCEPTANCE CRITERIA	OPEN (only when supplying AFW pumps)			
MODE	1, 2, and 3			
0300	NA	NA	NA	NA
0900				
1500				
2100				

Daily Surveillance Requirements Log

INSTRUCTIONS

1. ERFIS is the preferred source for verifying CNTMT AVG TEMP.
2. Verify TCV97540 computer point quality code is acceptable. If acceptable, record the ERFIS value for CNTMT AVG TEMP and verify less than or equal to 120°F.
3. If computer point TCV97540 is not available, verify both MCB indicators for CNTMT AVG TEMP less than or equal to 120°F.

TECH SPEC	PLP-114		4.6.1.5	N/A		4.6.1.4		PLP-114	
PARAMETER	A EDG ELEC ROOM 261	B EDG ELEC ROOM 261	CNMT AVG TEMP			CONTAINMENT PRESSURE		CONTROL ROOM ENVELOPE 305	
INSTRUMENT	ALB 27/1-3		TCV97540	TI-7542 SA	TI-7541 SB	PDI-7680 A SA	PDI-7680 B SB	TI-7837 A1SA	TI-7837 B1SB
ACCEPTANCE CRITERIA	NO ALARM (≤ 116°F) LOCAL TEMP IS NEEDED IF ALARM IS PRESENT		LESS THAN OR EQUAL TO 120°F			GREATER THAN -1.0 INWG		LESS THAN OR EQUAL TO 85°F	
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE		1, 2, 3, and 4			1, 2, 3, and 4		WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE	
0300	B	B	NA	121	116	-0.3	-0.4	70	71
0900									
1500									
2100									

TECH SPEC	PLP-114						
PARAMETER	FHB EMER EXH AREA		ROD CNTRL CAB AREA 305	STEAM TUNNEL	SA ELECT PENET AREA 261	SB ELECT PENE AREA 261	1A35SA, 1B35SB 261
INSTRUMENT	TI-6537A1SA	TI-6537B1SB	ALB 23/3-5	ALB 23/2-11	ALB 23/2-8		ALB 23/2-5
ACCEPTANCE CRITERIA	LESS THAN OR EQUAL TO 104°F		NO ALARM (≤ 104°F)	NO ALARM (≤ 122°F)	NO ALARM (LESS THAN OR EQUAL TO 104°F)		
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE		WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE (LOCAL TEMP MUST BE TAKEN IF ALARM IS PRESENT)				
0300	76	78	B	B	B	B	B
0900							
1500							
2100							

Daily Surveillance Requirements Log

TECH SPEC	PLP-114						
PARAMETER	CHILLER, AFW PIPE & VALVE AREA 261	CCW PUMPS & HX AFW PUMPS 236	A-SA CSIP ROOM 236	B-SB CSIP ROOM 236	1C-SAB CSIP ROOM 236	SW BSTR B-SB PUMP 236	MECH & ELEC PENET AREA 236
INSTRUMENT	ALB 23/2-6 ALB 23/2-7	ALB 23/1-6 ALB 23/1-7	ALB 23/1-5		ALB 23/1-4	ALB 23/1-11	ALB 23/2-9 ALB 23/2-10
ACCEPTANCE CRITERIA	NO ALARM (LESS THAN OR EQUAL TO 104°F)						
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE (LOCAL TEMP MUST BE TAKEN IF ALARM IS PRESENT)						
0300	B	B	B	B	B	B	B
0900							
1500							
2100							

TECH SPEC / COMMITMENT	PLP-114				4.9.11			
PARAMETER	CSAT & HVAC EQUIP RM 216	WPB HVAC EQUIP RM 236	A-SA CS, RHR, HVAC 190	B-SB CS, RHR, HVAC 190	FUEL POOLS			
					SPENT FP	NEW FP	SFP C	SFP D
INSTRUMENT	ALB 23/1-8	ALB 23/1-9	ALB 23/1-10		ALB 23/4-17	ALB 23/5-17	ALB 23/4-18	ALB 23/5-18
ACCEPTANCE CRITERIA	NO ALARM (LESS THAN OR EQUAL TO 104°F)				NO ALARM (GREATER THAN 23 FT)			
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE (LOCAL TEMP MUST BE TAKEN IF ALARM IS PRESENT)				WHEN IRRADIATED FUEL IS IN THE POOL (LOCAL LEVEL MUST BE TAKEN IF ALARM IS PRESENT)			
0300	B	B	B	B	B	B	B	B
0900								
1500								
2100								

Daily Surveillance Requirements Log

TECH SPEC / COMMITMENT	ESR 97-00272	ESR 95-00425		ESR 97-00272
PARAMETER	SPENT FUEL POOL HIGH TEMPERATURE ALARM	SPENT FUEL POOL HIGH TEMPERATURE ALARM		NEW FUEL POOL HIGH TEMPERATURE ALARM
INSTRUMENT	ALB 23/4-16	ALB 23/4-15	ALB 23/5-15	ALB 23/5-16
ACCEPTANCE CRITERIA	NO ALARM	NO ALARM		NO ALARM
MODE	1,2,3,4,5 and 6	1, 2, 3, 4, 5 and 6		1,2,3,4,5 and 6
0300	B	B	B	B
0900				
1500				
2100				

TECH SPEC	PLP-114					
PARAMETER	ESW ELEC EQUIP ROOM 261		ESW PUMP ROOM 261		EDG ROOM 261	
	A-SA	B-SB	A-SA	B-SB	A-SA	B-SB
INSTRUMENT	TEV6588A	TEV6588B	TEV6592A	TEV6592B	TDG6903A	TDG6903B
ACCEPTANCE CRITERIA	LESS THAN OR EQUAL TO 116°F		LESS THAN OR EQUAL TO 122°F		LESS THAN OR EQUAL TO 120°F	
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE					
0300	84	86	86	85	118	121
0900						
1500						
2100						

Daily Surveillance Requirements Log

NOTE 1: If a reservoir level computer point is bad, manual reservoir level determination can be performed per OP-163.

NOTE 2: If a reservoir temperature computer point is bad, manual reservoir temperature readings can be performed per APP-ALB-002-7-5.

INSTRUCTION

1. Due to a 3°F instrument inaccuracy associated with the permanently installed reservoir TSWs, if TSW9114/TSW9115 indicate ≥91°F, obtain local temperature readings per APP-ALB-002-7-5.

TECH SPEC	4.1.2.6b 4.5.4.b	4.7.5					
PARAMETER	RWST TEMP	AUX RSVR LEVEL		AUX RSVR TEMP	MAIN RSVR LEVEL		MAIN RSVR TEMP
INSTRUMENT	TCT7110	LSC8752A	LSC8752B	TSW9114	LSC8750A	LSC8750B	TSW9115
ACCEPTANCE CRITERIA	≥ 40°F AND ≤ 125°F	GREATER THAN OR EQUAL TO 250 FT NOTE 1		≤ 94°F NOTE 2	GREATER THAN OR EQUAL TO 215 FT NOTE 1		≤ 94°F NOTE 2
MODE	1, 2, 3 and 4						
0300	74.0	251.0	251.0	74.43	220.0	220.0	74.4
0900							
1500							
2100							

INSTRUCTION

1. The ECCS leakage outside RABEES reading is only required every 72 hours. Perform on Sunday, Wednesday, and Friday (mark as N/A on other days).

2. If any ECCS leakage outside RABEES is measured, record the cumulative leakrate on Attachment 7, along with the locations leaking.

TECH SPEC	PLP-114
PARAMETER	ECCS leakage outside RABEES
INSTRUMENT	N/A
ACCEPTANCE CRITERIA	LESS THAN 2 GPH (125 cc/min) cumulative
MODE	1, 2, 3 and 4
0300	
0900	
1500	
2100	

Daily Surveillance Requirements Log

NOTE 1:

- Meteorological Channel check includes: (1) Initialing for a acceptable quality code if using ERFIS or verifying data quality is consistent with actual weather conditions if using a Personal Computer(PC) to access the meteorological tower, and (2) Recording present values and verifying trend appears normal.
- During calm wind conditions (approximately 2 mph or less) it is normal to see disagreement between the upper and lower wind direction indicators. At times the vanes may actually rotate in opposite directions.
- The following shall be used for performing the daily channel check of the meteorological instrumentation channels:
  - On ERFIS observe the points for wind speed, wind direction, and differential temperature.

    OR

  - Using a PC , access the meteorological tower and observe upper and lower wind speed, upper and lower wind direction, and differential temperature (or stability class).

  The meteorological instrumentation should only be considered inoperable if both of the above methods are unavailable.

NOTE 2: R — MIMS Channel check should include, as a minimum, both a Self Test and an Audio Monitoring Test of all operable channels. (Reference 2.6.0.04)

TECH SPEC	PLP-114												PLP-114
PARAMETER	METEOROLOGICAL												MIMS
	LOWER WIND SPEED		UPPER WIND SPEED		LOWER WIND DIRECTION		UPPER WIND DIRECTION		AIR ΔT				
INSTRUMENT	MMT1008		MMT1010		MMT1014		MMT1013		MMT1004		MMT1005		ALL CHANNELS
ACCEPTANCE CRITERIA	CHANNEL CHECK NOTE 1												CHANNEL CHECK NOTE 2
	Value	Init	Value	Init	Value	Init	Value	Init	Value	Init	Value	Init	
MODE	AT ALL TIMES												1, 2
0300	8.30	JB	9.60	JB	116.10	JB	112.60	JB	-0.42	JB	-0.48	JB	JB
0900													
1500													
2100													

Daily Surveillance Requirements Log

TECH SPEC	PLP-114						
PARAMETER	EDG HVAC ROOM 280		EDG HVAC ROOM 292		DFOST BLDG 242	TANK AREA 236	
	A-SA	B-SB	A-SA	B-SB			
INSTRUMENT	LOCAL THERMOMETER						
ACCEPTANCE CRITERIA	LESS THAN OR EQUAL TO 118°F		LESS THAN OR EQUAL TO 122°F		LESS THAN OR EQUAL TO 122°F	LESS THAN OR EQUAL TO 104°F	VERIFIED
MODE	WHEN THE EQUIPMENT IN THE AFFECTED AREA IS REQUIRED TO BE OPERABLE						
0300							
0900							
1500							
2100							

INSTRUCTION

1. If battery room temperature is less than 71°F, perform Step 7.0.0.05.

TECH SPEC	PLP-114							4.3.1.1.2.a	
PARAMETER	ELECT PENETRATION AREA 286		SWITCHGEAR ROOM 286		BATTERY ROOM 286		PIC RM 305	OST-1000 or OST-1004	
	A-SA	B-SB	A-SA	B-SB	A-SA	B-SB			
INSTRUMENT	LOCAL THERMOMETER							N/A	
ACCEPTANCE CRITERIA	LESS THAN OR EQUAL TO 104°F		LESS THAN OR EQUAL TO 90°F		≥ 71°F AND ≤ 85°F		LESS THAN OR EQUAL TO 85°F	COMPLETED SAT	VERIFIED
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE							1 above 15% Power	
0300								B	
0900									
1500									
2100									

Daily Surveillance Requirements Log

TECH SPEC	PLP-114						
PARAMETER	E-6 ROOMS 261		AUX TRANSFER PANEL ROOM 286		PIC ROOMS 286		
	A-SA	B-SB	A-SA	B-SB	17, 19	18	
INSTRUMENT	LOCAL THERMOMETER						
ACCEPTANCE CRITERIA	LESS THAN OR EQUAL TO 104°F				LESS THAN OR EQUAL TO 85°F		VERIFIED
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE						
0300							
0900							
1500							
2100							

TECH SPEC	PLP-114			
PARAMETER	ACP 286	AH-15 VENTILATION ROOM	ARP ROOM 305	
INSTRUMENT	LOCAL THERMOMETER			
ACCEPTANCE CRITERIA	LESS THAN OR EQUAL TO 90°F	LESS THAN OR EQUAL TO 104°F	LESS THAN OR EQUAL TO 85°F	VERIFIED
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE			
0300				
0900				
1500				
2100				

Daily Surveillance Requirements Log

NOTE 1: These readings are only required on Sundays. These readings may be marked N/A on other days.

TECH SPEC	4.1.2.2.a				
PARAMETER	VCT VALVE GALLERY	BAT ROOM	BORIC ACID XFER PUMP VALVE GALLERY	EMER BORATION VALVE RM	BORIC ACID XFER PUMP ROOM
INSTRUMENT	LOCAL THERMOMETER				
ACCEPTANCE CRITERIA	GREATER THAN OR EQUAL TO 65°F				
MODE	1, 2 and 3				
0300)					
0900 (NOTE 1)					
1500					
2100					

TECH SPEC	4.1.2.2.a					
PARAMETER	BAT TO CSIP SUCTION HEADER PIPE TEMPERATURE (IF ANY OF THESE INSTRUMENTS FAIL, INITIATE CORRECTIVE ACTION AND NOTE IN COMMENTS SECTION. USE SECONDARY INSTRUMENTS TO SATISFY THE SURVEILLANCE REQUIREMENT)					
INSTRUMENT	HT-18753C C2-1	HT-18753C C2-2	HT-18753B C1-9	HT-18753B C1-13	HT-18753B C2-3	HT-18753B C2-5
ACCEPTANCE CRITERIA	GREATER THAN OR EQUAL TO 65°F					
MODE	1, 2 and 3					
0300						
0900 (NOTE 1)						
1500						
2100						

TECH SPEC	4.1.2.2.a					
PARAMETER	BAT TO CSIP SUCTION HEADER PIPE TEMPERATURE (THESE ARE SECONDARY INSTRUMENTS. THESE SHOULD BE USED WHEN PRIMARY INSTRUMENTS FAIL. N/A IF NOT BEING USED.)					
INSTRUMENT	HT-18753CC C2-1	HT-18753CC C2-2	HT-18753BB C1-9	HT-18753BB C1-13	HT-18753BB C2-3	HT-18753BB C2-5
ACCEPTANCE CRITERIA	GREATER THAN OR EQUAL TO 65°F					
MODE	1, 2 and 3					
0300						
0900 (NOTE 1)						
1500						
2100						

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM RO-A.1.1

Determine Rod Misalignment Using Thermocouples

CANDIDATE: _____

EXAMINER: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

TASK: Determine Rod Misalignment Using Thermocouples

ALTERNATE PATH: None

FACILITY JPM NUMBER: NEW

KA: 2.1.19 IMPORTANCE: SRO NA RO 4.4

KA STATEMENT: Ability to use plant computer to obtain and evaluate parametric information on system or component status.

TASK STANDARD: Determines Shutdown Bank A Rod C9 is misalignment is NOT verifiable using incore thermocouples

PREFERRED EVALUATION LOCATION: SIMULATOR ___ IN PLANT ___

PREFERRED EVALUATION METHOD: PERFORM ___ SIMULATE ___

REFERENCES: AOP-001, Malfunction of Rod Control and Indication System

VALIDATION TIME: 10 MINUTES TIME CRITICAL: No

CANDIDATE: _____

START TIME: _____ FINISH TIME: _____

PERFORMANCE TIME: _____ MINUTES

PERFORMANCE RATING: SAT _____ UNSAT _____

COMMENTS: _____

_____

_____

_____

EXAMINER: _____ _____
Signature Date

TOOLS / EQUIPMENT / PROCEDURES NEEDED:
Provide candidate with values from JPM Attachment which contains list of thermocouple temperatures in alphanumeric order after candidate states how information will be obtained.

AOP-001, "Malfunction of Rod Control and Indication System"

READ TO OPERATOR

INSTRUCTIONS TO CANDIDATE:

I will explain the initial conditions and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed or asked by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task, return the handout sheet I provide you.

INITIAL CONDITIONS:

The plant is operating at 100% power.

AOP-001, "Malfunction of Rod Control and Indication System," is being performed in response to suspected indications that Shutdown Bank A Rod C9 may be misaligned by more than 12 steps.

INITIATING CUE(S):

You have been directed to determine whether the Core Exit Thermocouples support the indication of a misaligned rod per AOP-001, Attachment 1, "Indications of Misaligned Rod."

START TIME: _____

*** DENOTES CRITICAL STEP**

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
1	NA	Obtains procedure	Obtains current copy of AOP-001, Attachment 1		
		NOTE: EXAMINER'S ANSWER KEY IS INCLUDED, WHICH INDICATES THE INFORMATION THAT THE CANDIDATE SHOULD DETERMINE. **PROCEDURE STEPS LISTED ON THIS JPM IDENTIFY THOSE STEPS AS LISTED ON THE ATTACHMENTS.**			
2	Att 1	Greater than 10°F difference between thermocouples adjacent to the misaligned rod and the average of symmetric thermocouples (Perform Attachment 2)	Obtain current copy of AOP-001, Attachment 2		
***3**	**Att 2 - 1**	**Determine thermocouple location(s) adjacent to the misaligned rod using core grid map (Sheet 1)**, and circle locations(s) in Table above. These thermocouple(s) are affected.	• **Using core grid map, determines thermocouple adjacent to Rod C9 is in location C8** • Circles location C8 on table	Critical to determine adjacent thermocouple location to allow determining which thermocouples are symmetric. Only determination is critical.	

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
4	Att 2 – 2	Record values for all operable affected and symmetric thermocouples using the RVLIS Console or ERFIS. Symmetric thermocouples are those in the same row.	Records following values for affected and symmetric thermocouples: • C08 (aff) – 602°F • H13 (sym) – 608°F • N08 (sym) – 608°F • H03 (sym) – 609°F		
		CUE (PROVIDED AFTER CANDIDATE STATES THEY MUST OBTAIN THERMOCOUPLE TEMPERATURES FROM RVLIS CONSOLE OR ERFIS): PROVIDE TEMPERATURES WHICH CANDIDATE REQUESTS BASED ON THERMOCOUPLE LOCATION FROM JPM ATTACHMENT.			
***5**	**Att 2 – 3**	**Determine the average of symmetric thermocouples, for each affected thermocouple.**	**Determines average of symmetric thermocouples – 608.33°F**	Critical to correctly determine the average of the symmetric thermocouples for comparison to the affected thermocouple.	
***6**	**Att 1**	**Determine if Core Exit Thermocouples support indication of misaligned rod**	**Determines Core Exit Thermocouples do NOT support indication of misaligned rod due to difference between affected thermocouple and symmetric thermocouple being <10°F (6.33°F)**	Critical to determine that the thermocouple indications do not support indication of a misaligned rod.	
		TASK COMPLETE			

STOP TIME: _____

JPM RO-A.1.1 ATTACHMENT
INCORE THERMOCOUPLE TEMPERATURES

(Thermocouples are listed in alphanumeric order)

THERMOCOUPLE LOCATION	TEMP (in °F)		THERMOCOUPLE LOCATION	TEMP (in °F)
A08	ABANDONED		H09	622
B05	590		H11	618
B10	588		H13	608
C08	602		H15	603
C12	605		J02	604
D03	608		J10	615
D05	611		J12	ABANDONED
E04	606		K03	604
E07	610		K05	611
E08	619		K08	615
E10	618		K11	ABANDONED
E12	614		L06	615
E14	604		L08	614
F03	ABANDONED		L12	609
F05	614		L14	ABANDONED
F09	614		M03	606
F11	615		M09	618
F13	608		M11	617
G01	ABANDONED		N04	609
G02	604		N06	610
G06	611		N08	608
G08	621		N10	608
G15	603		P07	607
H03	609		P08	604
H05	616		R07	613

ANSWER KEY FOR JPM RO-A.1-1

Attachment 2
Sheet 2 of 2

Affected and Symmetric Thermocouple Locations

NOTE

B10, E07, K08, and P08 have no symmetric locations.

GRID	I		II		III		IV	
TRAIN	A	B	A	B	A	B	A	B
	A08*				H15			
		G01*		G15			R07	
S L	B05			E14		L14*		
Y O		C08	H13				N08	H03
M C		D03	C12				N04	M03
M A	E04	D05		E12	M11	L12		
E T			H11	E08		L08		H05
T I		F05	F11	E10	K11*		K05	L06
R O		F03*	F13			N10	N06	K03
I N	G06		F09			J10		
C S		G08			H09			
	G02						J02	P07
					M09	J12*		

* Thermocouples abandoned by EC 47997

1. Determine thermocouple location(s) adjacent to the misaligned rod using core grid map (Sheet 1), and circle locations(s) in Table above. These thermocouple(s) are affected.

2. Record values for all operable affected and symmetric thermocouples using the RVLIS Console or ERFIS. Symmetric thermocouples are those in the same row.
   - Affected TC #1 ***C08 (602)*** Symmetric TC(s) ***H13 (608) – N08 (608) – H03 (609)***
   - Affected TC #2 _____ Symmetric TC(s) _____ ***(AVERAGE = 608.67)***
   - Affected TC #3 _____ Symmetric TC(s) _____
   - Affected TC #4 _____ Symmetric TC(s) _____

3. Determine the average of symmetric thermocouples, for each affected thermocouple.

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The plant is operating at 100% power.

AOP-001, "Malfunction of Rod Control and Indication System," is being performed in response to suspected indications that Shutdown Bank A Rod C9 may be misaligned by more than 12 steps.

INITIATING CUE(S):

You have been directed to determine whether the Core Exit Thermocouples support the indication of a misaligned rod per AOP-001, Attachment 1, "Indications of Misaligned Rod."

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM COM-A.1-2

Perform a Manual Power Range Heat Balance Calculation

CANDIDATE: _____

EXAMINER: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

TASK: Perform a Manual Power Range Heat Balance Calculation

ALTERNATE PATH: None

FACILITY JPM NUMBER: NEW

KA: 2.1.25 IMPORTANCE: SRO 4.6 RO 4.4

KA STATEMENT: Ability to obtain and interpret station reference materials such as graphs, monographs, and tables which contain performance data.

TASK STANDARD: Heat balance has been calculated within allowable tolerance

PREFERRED EVALUATION LOCATION: SIMULATOR ___ IN PLANT ___

PREFERRED EVALUATION METHOD: PERFORM ___ SIMULATE ___

REFERENCES:
- OST-1204, Power Range Heat Balance, Manual Calculation, Daily Interval, Mode 1 (Above 15% Power)
- Steam Tables

VALIDATION TIME: ~~30~~ 35 MINUTES TIME CRITICAL: No

CANDIDATE: _____

START TIME: _____ FINISH TIME: _____

PERFORMANCE TIME: _____ MINUTES

PERFORMANCE RATING: SAT _____ UNSAT _____

COMMENTS: _____

_____

_____

_____

EXAMINER: _____ _____
Signature Date

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

- Provide candidate with Attachment which contains collected data and required forms to fill out.
- Examiner's Answer Key is also included as Attachment.

- OST-1204, Power Range Heat Balance, Manual Calculation, Daily Interval, Mode 1 (Above 15% Power)
- Steam Tables

READ TO OPERATOR

INSTRUCTIONS TO CANDIDATE:

I will explain the initial conditions and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed or asked by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task, return the handout sheet I provide you.

INITIAL CONDITIONS:

The plant is operating at approximately 100% power. ERFIS is out-of-service and is expected to be out for an extended period of time.

OST-1204, Power Range Heat Balance, Manual Calculation, Daily Interval, Mode 1 (Above 15% Power) is to be performed to meet the periodic surveillance requirement for Technical Specification 4.3.1.1, Table 4.3-1, Item 2a.

Steam Generator Blowdown is isolated.

I&C Technicians have collected all necessary data for the calculation.

INITIATING CUE(S):

You have been directed to perform OST-1204, Power Range Heat Balance, Manual Calculation, Daily Interval, Mode 1 (Above 15% Power), by completing Attachment 5, "Calorimetric Worksheet," and Attachment 6, "Certifications and Reviews."

NOTE: The Examiner will provide you with completed Attachments 1-4 and copies of Attachments 5 and 6 for you to complete.

START TIME: _____

*** DENOTES CRITICAL STEP**

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
1	NA	Obtains procedure	Obtains current copy of OST-1204		
		NOTE: FOLLOWING JPM STEPS DESCRIBE HOW ATTACHMENTS 5 AND 6 OF OST-1204 ARE TO BE FILLED OUT. **EXAMINER'S ANSWER KEY IS INCLUDED. BOLDED ITEMS WITH SHADED BACKGROUND ARE CONSIDERED TO BE THE CRITICAL STEPS REQUIRED TO SUCCESSFULLY COMPLETE THIS JPM.** **PROCEDURE STEPS LISTED ON THIS JPM IDENTIFY THOSE STEPS AS LISTED ON THE ATTACHMENTS.**			
***2**	**Att. 5 – 1a**	**Calculate Steam Generator Exit Enthalpies:** • **Steam Tables Lookup: Saturated Steam, Liquid Enthalpies**	1) Fills in SG Pressures from Att 3 as SG A – 900, SG B – 890, SG C – 900 2) Looks up liq enthalpy for SG pressures as SG A – 526.7, SG B – 525.0±0.2 (interpolation required), SG C – 526.7 **3) Looks up steam enthalpy for SG pressures as SG A – 1196.4, SG B – 1196.7±0.2 (interpolation required), SG C – 1196.4**	Critical to accurately determine steam enthalpy to determine power level. Note liquid enthalpy value is NOT critical since it will be multiplied by zero in next step.	

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
*3	**Att. 5 – 1b**	• **Calculate SG Exit Steam Enthalpies**	**Determines SG exit enthalpies, by multiplying liq enthalpy by zero and then substracting from steam enthalpy (same value as steam enthalpy), as SG A – 1196.4, SG B – 1196.7±0.2, SG C – 1196.4**	Critical to accurately calculate exit enthalpy to determine power level. Note that tolerance is carried forward.	
*4	**Att. 5 – 2**	**Feedwater Enthalpy (Steam Tables Lookup)**	**Using temperature value of feedwater, determines enthalpy of sat liquid at 440°F to be 419.0**	Critical to use temperature and not pressure of feed to determine enthalpy.	
*5	**Att. 5 – 3**	**Enthalpy Rise Across the Steam Generators**	**Determines enthalpy rise across SGs, by subtracting FW enthalpy from SG exit enthalpy, as SG A – 777.4, SG B – 777.7±0.2, SG C – 777.4**	Critical to accurately calculate enthalpy rise to determine reactor power. Note that tolerance is carried forward.	
*6	**Att. 5 – 4**	**Steam Generator Powers**	1) Fills in FW Flows from Att 3 as SG A – 4.246, SG B – 4.223, SG C – 4.255 2) **Determines SG powers, by multiplying FW Flows by SG enthalpy rise, as SG A – 3300.84, SG B – 3284.23±0.85, SG C – 3307.84**	Critical to accurately calculate SG power to determine reactor power. Note that tolerance is carried forward and adjusted due to multiplication.	

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
*7	**Att. 5 – 5**	**Calculate Total Reactor Power**	**Determines total reactor power, by adding the SG powers and subtracting RCP heat input, as 9850.60±0.85**	Critical to accurately calculate total reactor power to determine reactor power. Note that tolerance is carried forward.	
*8	**Att. 5 – 6**	**Convert Mbtu/hr to MWth**	**Converts to thermal power, by dividing total reactor power by a conversion factor, as 2886.96±0.25**	Critical to accurately convert to determine reactor power. Note that tolerance is carried forward and adjusted for division.	
*9	**Att. 5 – 7**	**Calculate Percent of Rated Thermal Power**	**Determines percent reactor power, by dividing thermal power by rated thermal power, as 99.6±0.1**	Critical to accurately convert to determine percent reactor power. Note that tolerance is carried forward and adjusted for division.	

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
***10**	**Att. 5 – 8**	**Power Range NI Surveillance**	1) Fills in highest and lowest indicated PR channels from Att 3 as 100 and 99.5 **2) Determines difference between indicated and calculated power, by subtracting calculated from indicated, as Highest Indicated – 0.4±0.1% and Lowest Indicated – (-)0.1±0.1%**	Critical to accurately determine difference between indicated and actual power to determine if PR NI channels require adjustment. Note that tolerance is carried forward.	
11	Att 5 Perf	Sign Attachment 5 as Performer	Signs Attachment 5		
12		Calculation Verified	Requests verification of calculation		
		CUE: FOR PURPOSES OF THIS JPM ONLY, VERIFICATION IS NOT REQUIRED.			
13	Att 6	Check OST performed for periodic surveillance	Checks periodic surveillance		
14		Fill in plant conditions	Fills in plant conditions as 100% power, Mode 1		
15		Sign / date completion of OST	Signs and dates completion of OST		
		TASK COMPLETE			

STOP TIME: _____

ANSWER KEY FOR JPM COM-A1-2

Attachment 5
Sheet 1 of 2

Calorimetric Worksheet

1. Calculate Steam Generator Exit Enthalpies

a. Steam Tables Lookup: Saturated Steam, Liquid Enthalpies

	SG Pressure		Liq. Enthalpy (h_f)		Stm. Enthalpy (h_g)	
SG A:	900	psia →	526.7	btu/lbm,	**1196.4**	btu/lbm
SG B:	890	psia →	525.0+/-0.2	btu/lbm,	**1196.7+/-0.2**	btu/lbm
SG C:	900	psia →	526.7	btu/lbm,	**1196.4**	btu/lbm

b. Calculate SG Exit Steam Enthalpies

		Stm. Enthalpy (h_g)		Liq. Enthalpy (h_f)		Exit Enthalpy (h_{exit})	
SG A:	1.00 x	1196.4	+ 0.00 x	526.7	=	**1196.4**	btu/lbm
SG B:	1.00 x	1196.7+/-0.2	+ 0.00 x	525.0+/-0.2	=	**1196.7+/-0.2**	btu/lbm
SG C:	1.00 x	1196.4	+ 0.00 x	526.7	=	**1196.4**	btu/lbm

2. Feedwater Enthalpy (Stm Tables Lookup)

h_{FW} = h (440 (FW Avg °F) | 1080 (FW Psia)) → **419.0** btu/lbm (h_{FW})

3. Enthalpy Rise across the Steam Generators

	Exit Enthalpy (h_{exit})		FW Enthalpy (h_{FW})		Δ Enthalpy (Δh_{SG})	
SG A:	1196.4	-	419.0	=	**777.4**	btu/lbm
SG B:	1196.7+/-0.2	-	419.0	=	**777.7+/-0.2**	btu/lbm
SG C:	1196.4	-	419.0	=	**777.4**	btu/lbm

ANSWER KEY FOR JPM COM-A1-2

ANSWER KEY FOR JPM COM-A1-2

Attachment 5
Sheet 2 of 2

Calorimetric Worksheet

4. Steam Generator Powers

	FW Flow (MPPH)		Δ Enthalpy (btu/lbm)		Q_{SG} (Mbtu/hr)	
$Q_{SG\ A}$:	4.246	x	777.4	=	3300.84	Mbtu/hr
$Q_{SG\ B}$:	4.223	x	777.7+/-0.2	=	3284.23+/-0.85	Mbtu/hr
$Q_{SG\ C}$:	4.255	x	777.4	=	3307.84	Mbtu/hr

5. Calculate Total Reactor Power

3300.84 ($Q_{SG\ A}$) + 3300.23+/-0.85 ($Q_{SG\ B}$) + 3307.84 ($Q_{SG\ C}$) - 42.31 (Q_{RCP}) = **9850.60+/-0.85** (Q_{RX}) Mbtu/hr

6. Convert Mbtu/hr to MW_{th}

9850.60+/-0.85 Mbtu/hr - 3.4121 Mbtu/hr/MW_{th} = **2886.96+/-0.25** MW_{th}

7. Calculate Percent of Rated Thermal Power

$\frac{2886.96+/-0.25\ MW_{th}}{2900\ MW_{th}}$ x 100 = **99.6+/-0.1** % RTP

8. Power Range NI Surveillance

100.0 (Highest PR NI (%))	- 99.6+/-0.1 (Calc'd Power (%))	= **0.4+/-0.1**	%
99.5 (Lowest PR NI (%))	- 99.6+/-0.1 (Calc'd Power (%))	= **-0.1+/-0.1**	%

Performed By: CANDIDATE SIGN

Verified By: N/A

ANSWER KEY FOR JPM COM-A1-2

ANSWER KEY FOR JPM COM-A1-2

Attachment 6
Sheet 1 of 1

Certifications and Reviews

This OST was performed as a: Periodic Surveillance Requirement: X

Post Maintenance Operability Test: ____

Redundant Subsystem Test: ____

Plant Conditions: 100% power Mode: 1

OST Completed By: CANDIDATE SIGN Date: CURRENT

Time: CURRENT

OST Performed By:

Initials	Name (Print)	Initials	Name (Print)
BJ	Bob Jones		
SS	Samuel Snead		
CANDIDATE INITIAL / PRINT NAME			

General Comments/Recommendations/Corrective Actions/Exceptions:

Pages Used: ____

OST Completed with NO EXCEPTIONS / EXCEPTIONS:

Date: ____

Unit SCO

After receiving the final review signature, this OST becomes a QA RECORD and should be submitted to Document Services.

ANSWER KEY FOR JPM COM-A1-2

ATTACHMENT FOR JPM COM-A1-2
(DATA COLLECTED)

Attachment 1
Sheet 1 of 1

Calibration Data Sheet

INST/MODEL DESCRIPTION	INST ID NO.	CAL DUE DATE
Precision DVM 0.04% accuracy or better (ex. Fluke Model 45)	**VM164**	**9/20/02**
Precision DVM 0.04% accuracy or better (ex. Fluke Model 45)	**VM226**	**10/02/02**

ATTACHMENT FOR JPM COM-A1-2
(DATA COLLECTED)

Collection of Field Inputs

NOTE: • Power Range NI readings should be recorded at the NI drawers with the meter rate set to slow, and should reflect peak values during the recording interval.

• Power range NI readings should be collected approximately halfway through the data gathering process.

PARAMETER	METER	READING
Indicated Reactor Power (NI Cabinets)	N-41	99.8 %
	N-42	100.0 %
	N-43	99.8 %
	N-44	99.5 %

ATTACHMENT FOR JPM COM-A1-2
(DATA COLLECTED)

Collection of Field Inputs

NOTE:
- In the following table, only one of the three redundant steam pressure signals for each main steam line are recorded.
- Only one feedwater pressure signal is required.
- Record all voltages to three decimal places.

RAB 305' ELEVATION					
ERFIS Computer Room					
Transmitter		**ERFIS MUX**	**Term Block**	**Terminals (Pos : Neg)**	**Voltage (0 – 10 V)**
SG Press Loop A (Record any one value)	PT-0474	50A	R 2G	(22 : 23)	**6.810** V
	PT-0475	50A	R 3B	(22 : 23)	**NA** V
	PT-0476	50A	R 3D	(19 : 20)	**NA** V
SG Press Loop B (Record any one value)	PT-0484	50A	R 2H	(01 : 02)	**6.733** V
	PT-0485	50A	R 3C	(01 : 02)	**NA** V
	PT-0486	50A	R 3D	(22 : 23)	**NA** V
SG Press Loop C (Record any one value)	PT-0494	50A	R 2H	(04 : 05)	**6.820** V
	PT-0495	50A	R 3C	(04 : 05)	**NA** V
	PT-0496	50A	R 3E	(01 : 02)	**NA** V
PIC Cabinet Room					
Transmitter		**PIC Cabinet**	**Card**	**Test Points (Pos : Neg)**	**Voltage (1 – 5 V)**
FW Press (Record any one value)	PT-2001A	PIC 9	0323	SIG COM (+) 1-5V Non-Isol (–)	**1.841** V
	PT-2001B	PIC 10	0244	SIG COM (+) 1-5V Non-Isol (–)	**NA** V
	PT-2001C	PIC 9	0324	SIG COM (+) 1-5V Non-Isol (–)	**NA** V

ATTACHMENT FOR JPM COM-A1-2
(DATA COLLECTED)

Collection of Field Inputs

NOTE:
- Record all voltages to three decimal places.
- All transmitter signals are scaled from 1 - 5 volts.
- All transmitter signal voltages are required.

TURBINE BLDG. 286' ELEVATION					
Transmitter		ERFIS MUX	Term Block	Terminals (Pos : Neg)	Voltage (1 – 5 V)
FW Temp Loop A	TE-2105	54B	R 1F	(07 : 08)	**2.490** V
FW Temp Loop B	TE-2106	54B	R 1F	(10 : 11)	**2.498** V
FW Temp Loop C	TE-2107	54B	R 1F	(13 : 14)	**2.500** V
FW Flow Loop A (Both values required)	FT-2007A	54B	R 1E	(19 : 20)	**4.076** V
	FT-2006A	54B	R 1E	(22 : 23)	**4.048** V
FW Flow Loop B (Both values required)	FT-2007B	54B	R 1E	(16 : 17)	**4.021** V
	FT-2006B	54B	R 1F	(04 : 05)	**4.047** V
FW Flow Loop C (Both values required)	FT-2007C	54B	R 1E	(13 : 14)	**4.067** V
	FT-2006C	54B	R 1E	(10 : 11)	**4.087** V

ATTACHMENT FOR JPM COM-A1-2
(DATA COLLECTED)

Field Input Development

1. Steam Generator Pressures

SG A Pressure

[**6.810** Volts] x 130. + 14.7 = **900** Psia

SG B Pressure

[**6.733** Volts] x 130. + 14.7 = **890** Psia

SG C Pressure

[**6.820** Volts] x 130. + 14.7 = **900** Psia

2. Feedwater Pressure

[**2.490** Volts - 1.0] x 375. + 14.7 = **1080** Psia

3. Feedwater Temperature

Avg Transmitter Signal

[**2.490** TE-2105 Volts + **2.498** TE-2106 Volts + **2.500** TE-2107 Volts] ÷ 3 = **2.496** Avg Temp Signal

FW Average Temperature

[**2.496** Avg Temp Signal - 1.0] x 135. + 32. = **440** FW Avg °F

~~ATTACHMENT FOR JPM COM-A1-2 (DATA COLLECTED)~~

Field Input Development

4. Feedwater Flow ΔP

SG A Avg Transmitter Signal

[**4.076** (FT-2007A Volts) + ~~4.048~~ (FT-2006A Volts)] ÷ 2. = **4.062** (SG A Avg FW Volts) Volts

SG A FW Flow ΔP

[**4.062** (SG A Avg FW Volts) - 1.0] x 298.075 = **912.79** (SG A Flow ΔP) Inwc

SG B Avg Transmitter Signal

[**4.021** (FT-2007B Volts) + **4.047** (FT-2006B Volts)] ÷ 2. = **4.034** (SG B Avg FW Volts) Volts

SG B FW Flow ΔP

[**4.034** (SG B Avg FW Volts) - 1.0] x 296.475 = **899.39** (SG B Flow ΔP) Inwc

SG C Avg Transmitter Signal

[**4.067** (FT-2007C Volts) + **4.087** (FT-2006C Volts)] ÷ 2. = **4.077** (SG C Avg FW Volts) Volts

SG C FW Flow ΔP

[**4.077** (SG C Avg FW Volts) - 1.0] x 297.175 = **914.30** (SG C Flow ΔP) Inwc

Performed By: **Bob Jones**

Verified By: **Samuel Snead**

ATTACHMENT FOR JPM COM-A1-2
(DATA COLLECTED)

Attachment 4
Sheet 1 of 1

Feedwater Flow Worksheet

1. Feedwater Venturi Expansion Coefficient

$fa = 0.99881 + 0.172682E\text{-}4 * \frac{440}{\text{FW Avg °F}} + 0.259026E\text{-}8 * \left(\frac{440}{\text{FW Avg °F}}\right)^2$

$= \mathbf{1.006409}$

2. Feedwater Fluid Density

$\rho_{FW} = 1.0 / \text{Spec Vol}\left(\frac{\mathbf{440}}{\text{FW Avg °F}}, \frac{\mathbf{1080}}{\text{FW Psia}}\right)$ (Stm Tables lookup)

$\rho_{FW} = \mathbf{51.92}$ (lbm/ft^3)

3. Feedwater Flows

FW Flow, SG A

$FW\ A = 1.93800E\text{-}2 * \frac{\mathbf{1.006409}}{fa} * \left(\frac{\mathbf{912.79}}{\text{SG A Flow } \Delta P\ (\text{Inwc})}\right)^{1/2} * \left(\frac{\mathbf{51.92}}{\rho_{FW}}\right)^{1/2}$

$FW\ A = \mathbf{4.246}$ (MPPH)

FW Flow, SG B

$FW\ B = 1.94180E\text{-}2 * \frac{\mathbf{1.006409}}{fa} * \left(\frac{\mathbf{899.39}}{\text{SG B Flow } \Delta P\ (\text{Inwc})}\right)^{1/2} * \left(\frac{\mathbf{51.92}}{\rho_{FW}}\right)^{1/2}$

$FW\ B = \mathbf{4.223}$ (MPPH)

FW Flow, SG C

$FW\ C = 1.94050E\text{-}2 * \frac{\mathbf{1.006409}}{fa} * \left(\frac{\mathbf{914.30}}{\text{SG C Flow } \Delta P\ (\text{Inwc})}\right)^{1/2} * \left(\frac{\mathbf{51.92}}{\rho_{FW}}\right)^{1/2}$

$FW\ C = \mathbf{4.255}$ (MPPH)

Performed By: **Bob Jones**

Verified By: **Samuel Snead**

ATTACHMENT FOR JPM COM-A1-2
(TO BE COMPLETED AND RETURNED TO EXAMINER)

Attachment 5
Sheet 1 of 2

Calorimetric Worksheet

1. Calculate Steam Generator Exit Enthalpies

a. Steam Tables Lookup: Saturated Steam, Liquid Enthalpies

	SG Pressure		Liq. Enthalpy (h_f)	Stm. Enthalpy (h_g)
SG A:	_____ psia	→	_____ btu/lbm,	_____ btu/lbm
SG B:	_____ psia	→	_____ btu/lbm,	_____ btu/lbm
SG C:	_____ psia	→	_____ btu/lbm,	_____ btu/lbm

b. Calculate SG Exit Steam Enthalpies

	Stm. Enthalpy (h_g)		Liq. Enthalpy (h_f)		Exit Enthalpy (h_{exit})
SG A:	1.00 x _____	+	0.00 x _____	=	_____ btu/lbm
SG B:	1.00 x _____	+	0.00 x _____	=	_____ btu/lbm
SG C:	1.00 x _____	+	0.00 x _____	=	_____ btu/lbm

2. Feedwater Enthalpy (Stm Tables Lookup)

h_{FW} = h (_____ (FW Avg °F) | _____ (FW Psig)) → _____ btu/lbm (h_{FW})

3. Enthalpy Rise across the Steam Generators

	Exit Enthalpy (h_{exit})		FW Enthalpy (h_{FW})		Δ Enthalpy (Δh_{SG})	
SG A:	_____	-	_____	=	_____	btu/lbm
SG B:	_____	-	_____	=	_____	btu/lbm
SG C:	_____	-	_____	=	_____	btu/lbm

ATTACHMENT FOR JPM COM-A1-2
(TO BE COMPLETED AND RETURNED TO EXAMINER)

Calorimetric Worksheet

4. Steam Generator Powers

	FW Flow (MPPH)		Δ Enthalpy (btu/lbm)		Q_{SG} (Mbtu/hr)	
$Q_{SG\ A}$:	_____	x	_____	=	_____	Mbtu/hr
$Q_{SG\ B}$:	_____	x	_____	=	_____	Mbtu/hr
$Q_{SG\ C}$:	_____	x	_____	=	_____	Mbtu/hr

5. Calculate Total Reactor Power

$$\frac{\_\_\_\_\_}{Q_{SG\ A}} + \frac{\_\_\_\_\_}{Q_{SG\ B}} + \frac{\_\_\_\_\_}{Q_{SG\ C}} \cdot \frac{42.31}{Q_{RCP}} = \frac{\_\_\_\_\_}{Q_{Rx}} \text{ Mbtu/hr}$$

6. Convert Mbtu/hr to MW_{Th}

_____ Mbtu/hr ÷ 3.4121 Mbtu/hr/MW_{Th} = _____ MW_{Th}

7. Calculate Percent of Rated Thermal Power

$$\frac{MW_{Th}}{2900\ MW_{Th}} \times 100 = \_\_\_\_\_ \%\ RTP$$

8. Power Range NI Surveillance

Highest PR NI (%)	Calc'd Power (%)	=	_____ %
Lowest PR NI (%)	Calc'd Power (%)	=	_____ %

Performed By: _____

Verified By: _____

ATTACHMENT FOR JPM COM-A1-2
(TO BE COMPLETED AND RETURNED TO EXAMINER)

Attachment 6
Sheet 1 of 1

Certifications and Reviews

This OST was performed as a: Periodic Surveillance Requirement: _____

Post Maintenance Operability Test: _____

Redundant Subsystem Test: _____

Plant Conditions: _____ Mode: _____

OST Completed By: _____ Date: _____

Time: _____

OST Performed By:

Initials	Name (Print)	Initials	Name (Print)
BJ	Bob Jones		
SS	Samuel Snead		

General Comments/Recommendations/Corrective Actions/Exceptions:

Pages Used: _____

OST Completed with NO EXCEPTIONS / EXCEPTIONS:

_____ Date: _____

Unit SCO

After receiving the final review signature, this OST becomes a QA RECORD and should be submitted to Document Services.

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The plant is operating at approximately 100% power. ERFIS is out-of-service and is expected to be out for an extended period of time.

OST-1204, Power Range Heat Balance, Manual Calculation, Daily Interval, Mode 1 (Above 15% Power) is to be performed to meet the periodic surveillance requirement for Technical Specification 4.3.1.1, Table 4.3-1, Item 2a.

Steam Generator Blowdown is isolated.

I&C Technicians have collected all necessary data for the calculation.

INITIATING CUE(S):

You have been directed to perform OST-1204, Power Range Heat Balance, Manual Calculation, Daily Interval, Mode 1 (Above 15% Power), by completing Attachment 5, "Calorimetric Worksheet," and Attachment 6, "Certifications and Reviews."

NOTE: The Examiner will provide you with completed Attachments 1-4 and copies of Attachments 5 and 6 for you to complete.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM COM-A.2

Review an Equipment Clearance

INCLUDE - CWD 2
① ~~resource available~~ OPS NGGC-1301

CANDIDATE: _____

EXAMINER: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

TASK: Review an Equipment Clearance

ALTERNATE PATH: None

FACILITY JPM NUMBER: IP-164 (Modified)

KA: 2.2.13 IMPORTANCE: SRO 3.8 RO 3.6

KA STATEMENT: Knowledge of clearing and tagging procedures.

TASK STANDARD: Identifies both discrepancies on clearance AND MAKES NO ERRORS That cause mechanical failure or safety hazard

PREFERRED EVALUATION LOCATION: SIMULATOR ___ IN PLANT ___

PREFERRED EVALUATION METHOD: PERFORM ___ SIMULATE ___

REFERENCES:
- OPS-NGGC-1301, Equipment Clearance
- S-1311, Simplified Flow Diagram Boron Recycle System
- OP-109, Boron Recycle System
- CWD 2166 B-401

VALIDATION TIME: 30 MINUTES TIME CRITICAL: No

CANDIDATE: _____

START TIME: _____ FINISH TIME: _____

PERFORMANCE TIME: _____ MINUTES

PERFORMANCE RATING: SAT _____ UNSAT _____

COMMENTS: _____

_____

_____

_____

EXAMINER: _____ _____
Signature Date

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

- Provide candidate with Attachment which is the completed clearance form

- OPS-NGGC-1301, "Equipment Clearance"
- S-1311, "Simplified Flow Diagram Boron Recycle System"
- OP-109, "Boron Recycle System"
- CWD 2166 B-401

READ TO OPERATOR

INSTRUCTIONS TO CANDIDATE:

I will explain the initial conditions and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed or asked by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task, return the handout sheet I provide you.

INITIAL CONDITIONS:

The unit is operating at 30% power.

The internals for 3BR-153, Recycle Evaporator Feed Pump 1&2B Discharge Check Valve, must be replaced. Recycle Evaporator Feed Pump 1&2B has been secured and Pump 1&2A is aligned for operation.

Mechanical Maintenance has submitted a clearance request. The clearance has been manually generated.

INITIATING CUE(S):

You are to review the Equipment Clearance Tag Sheet for 3BR-153 and identify **EVERY** discrepancy.

NOTE: Individual tags have **NOT** been generated and are **NOT** part of the review process.

START TIME: _____

*** DENOTES CRITICAL STEP**

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
1	NA	Obtains procedure and required information	Obtains current copy of NGGC-1301, S-1311, and OP-109		
		NOTE: JPM IS WRITTEN FOLLOWING THE GUIDELINES OF NGGC-1301, STEPS 9.2.1.10, 9.2.1.13, and 9.2.1.25. NO SPECIFIC ORDER FOR PERFORMANCE OF THE JPM IS REQUIRED PROVIDED THE CANDIDATE IDENTIFIES THE DISCREPANCIES. JPM STEPS ARE WRITTEN IN THE GENERAL FLOWPATH THAT THE PUMP MUST BE TAGGED FIRST, FOLLOWED BY DISCHARGE PATH, SUCTION PATH, AND THEN DRAINS AND VENTS.			
2	9.2.1.10.a	For systems where a pump or fan is affected by the clearance, the clearance should be installed in the following sequence to prevent damage to equipment: • Secure pump/fan and hang a tag on its control switch.	Determines that clearance correctly has pump secured (initial conditions) and control switches have info tag hung before tagging power to pump		
***3**	**9.2.1.10.b**	**Remove the power source for the pump/fan prime mover (open breaker, remove fuse, shut steam supply valve and so forth) and place tag on the power source.**	**Determines that breaker for pump is tagged out of sequence as it is to be tagged prior to closing any valves**	Critical to determine that sequence for tagging pump breaker is not correct to ensure pump protection.	
4	9.2.1.10.c	Reposition valves from control switches, as required by the clearance, and place tags on the control switches. Include tags for switches in alternate locations if applicable.	Determines that clearance correctly does not identify any motor-operated valves requiring tagging		

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
5	9.2.1.10.d	Remove power source (electrical, air, hydraulic, and so forth) from valves, if applicable, and tag the power source removed.	Determines that clearance correctly does not identify any motor-operated valves requiring tagging		
***6**	**9.2.1.10.e**	**Reposition manual valves as required by the clearance and place tag on handwheels of the valves covered by the clearance. For pumps, shut the discharge valve before shutting the suction valve.**	• Determines that discharge valve is correctly tagged prior to suction valve, but incorrectly tagged prior to pump breaker being tagged (noted previously in JPM Step 3) • **Determines that 3BR-157, REFP 1&2B Recirc Return to RHT Isol, is NOT included on clearance, but should be included**	Critical to isolate all boundary isolations.	
7	9.2.1.13	For devices having a remote operator, such as a valve reach rod, where both valve and reach rod have a handwheel and are accessible, the clearance should be written such that both mechanical devices are tagged.	Determines that all valves on clearance that have reach rods have clearances hung correctly on both the valve handwheel and the reach rod		
8	9.2.1.25	Whenever possible, an atmospheric drain and/or vent between the work area and sources of pressure to the work area should be tagged in the open position with the cap/flange removed to release pressure in systems and to accommodate thermal expansion and contraction.	Determines that drain and vent paths are included as part of clearance		

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
9		Inform clearance preparer of discrepancies	Informs clearance preparer of 2 discrepancies • Incorrect order of discharge valve / pump breaker • Missing boundary isolation valve		
			e uncap & BPCW		
		TASK COMPLETE			

STOP TIME: _____

ATTACHMENT 3
Sheet 1 of 1
Operations Clearance Form

Clearance No. *02-99001*

System No. _____

1.0 Operations Approval

1.1 Principal Equipment *3BR-153, Recycle Evaporator Feed Pump 1&2B Discharge Check Valve*

1.2 _____ Date / Time
Prepared By (Planned)

1.3 _____ Date / Time
Verified By (Approved)

I. Authorization to hang: Equipment may be removed from service per Checklist and required documents listed in 2.1 have been activated.

2.1 Tech Spec/ESF/Fire Protection System operability affected? Yes/No

Required Documents: _____

_____ Date / Time
Distributed By SRO

3.0 Checklist completed. (Clearance Checklist completed as requested)

_____ Date / Time
Signature

4.0 Clearance Accepted: Individual signing has verified clearance establishes adequate boundary.			5.0 Clearance Released: Equipment ready to be operated or remark made in the Special Instructions as to why not.		
Signature	Date/Time	Grounds Required	Signature	Date/Time	Grounds Removed
1		Y/N			Y/N
2		Y/N			Y/N
3		Y/N			Y/N
4		Y/N			Y/N
5		Y/N			Y/N
6		Y/N			Y/N
7		Y/N			

6.0 Authorization to Cancel: The individuals signing Step 4.0 must sign Step 5.0 before clearance is canceled.

6.1 All work completed. Ground removal authorized.

_____ Date / Time
Signature

Restored Position and Order to be Restored sections prepared.

_____ Date / Time
Signature

6.2 Authorized to lift. Equipment may be restored to service per Checklist.

_____ Date / Time
Distributed by SRO

6.3 Checklist completed. (Clearance Checklist completed as requested)

_____ Date / Time
Signature

7.0 Review - Equipment Realigned as Required? Yes / NA

Clearance Removed from required documents? Yes / NA

OP V/E L/U Updated? Yes / NA

_____ Date / Time
SRO

Special Instructions/References *3BR-158 – record number of turns open when closing*

ATTACHMENT 4
Sheet 1 of 1

Operations Clearance Checklist

Clearance No. *02-99001*

Page *1* of *1*

Checklist Type: (Hang); Lift; Boundary Change (Circle one)

INT	NAME (PRINT)	INT	NAME (PRINT)
____	_____	____	_____
____	_____	____	_____
____	_____	____	_____

* Independent Verification Required? (YES) NO If NO, N/A the Blocks

Seq	Action	Type	Tag Id	Position	Equipment/Component	Completed By	IV By *
1	*HANG*	*CIT*	*WPS Pnl*	*STOP*	*BR EVAP FEED PMP B C/S*		
1	*HANG*	*CIT*	*CS-3587.1*	*NORMAL/ STOP*	*BR EVAP FEED PMP B*		
2	*HANG*	*RED*	*3BR-158*	*SHUT*	*REFP 1&2B Discharge Isol Valve (A507, EL 243')*		
2	*HANG*	*RED*	*3BR-158*	*SHUT*	*REFP 1&2B Discharge Isol Valve Reach Rod (A507, EL 243')*		
3	*HANG*	*RED*	*1-4B11-4D*	*OFF*	*Recycle Evap Feed Pump 1&2B Bkr*		
4	*HANG*	*RED*	*3BR-147*	*SHUT*	*REFP 1&2B Suction Isol Valve (A506, EL 238')*		
4	*HANG*	*RED*	*3BR-147*	*SHUT*	*REFP 1&2B Suction Isol Valve Reach Rod (A506, EL 238')*		
5	*HANG*	*RED*	*3BR-154*	*OPEN*	*REFP 1&2B Discharge Header Inner Drain Isol (A506, EL 239')*		
5	*HANG*	*RED*	*3BR-155*	*OPEN*	*REFP 1&2B Discharge Header Outer Drain Isol (A506, EL 238')*		
5	*HANG*	*RED*	*3BR-150*	*OPEN*	*REFP 1&2B Casing Drain Inner Isol Valve (A510, EL 237')*		
5	*HANG*	*RED*	*3BR-150*	*OPEN*	*REFP 1&2B Casing Drain Inner Isol Valve Reach Rod (A510, EL 237'))*		
5	*HANG*	*RED*	*3BR-151*	*OPEN*	*REFP 1&2B Casing Drain Outer Isol Valve (A510, EL 237')*		
5	*HANG*	*RED*	*3BR-151*	*OPEN*	*REFP 1&2B Casing Drain Outer Isol Valve Reach Rod (A510, EL 237')*		
5	*HANG*	*RED*	*3BR-148*	*OPEN*	*REFP 1&2B Strainer Inlet Press Px (A506, EL 237')*		

Continued Y (N)

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The unit is operating at 30% power.

The internals for 3BR-153, Recycle Evaporator Feed Pump 1&2B Discharge Check Valve, must be replaced. Recycle Evaporator Feed Pump 1&2B has been secured and Pump 1&2A is aligned for operation.

Mechanical Maintenance has submitted a clearance request. The clearance has been manually generated.

INITIATING CUE(S):

You are to review the Equipment Clearance Tag Sheet for 3BR-153 and identify **EVERY** discrepancy.

NOTE: Individual tags have **NOT** been generated and are **NOT** part of the review process.

9.2.1 **Administrative** (Cont.)

10. For systems where a pump or fan is affected by the clearance, the clearance should be installed in the following sequence to prevent damage to equipment:

    a. Secure pump/fan and hang a tag on its control switch.

    b. Remove the power source for the pump/fan prime mover (open breaker, remove fuse, shut steam supply valve and so forth) and place tag on the power source.

    c. Reposition valves from control switches, as required by the clearance, and place tags on the control switches. Include tags for switches in alternate locations if applicable.

    d. Remove power source (electrical, air, hydraulic, and so forth) from valves, if applicable, and tag the power source removed.

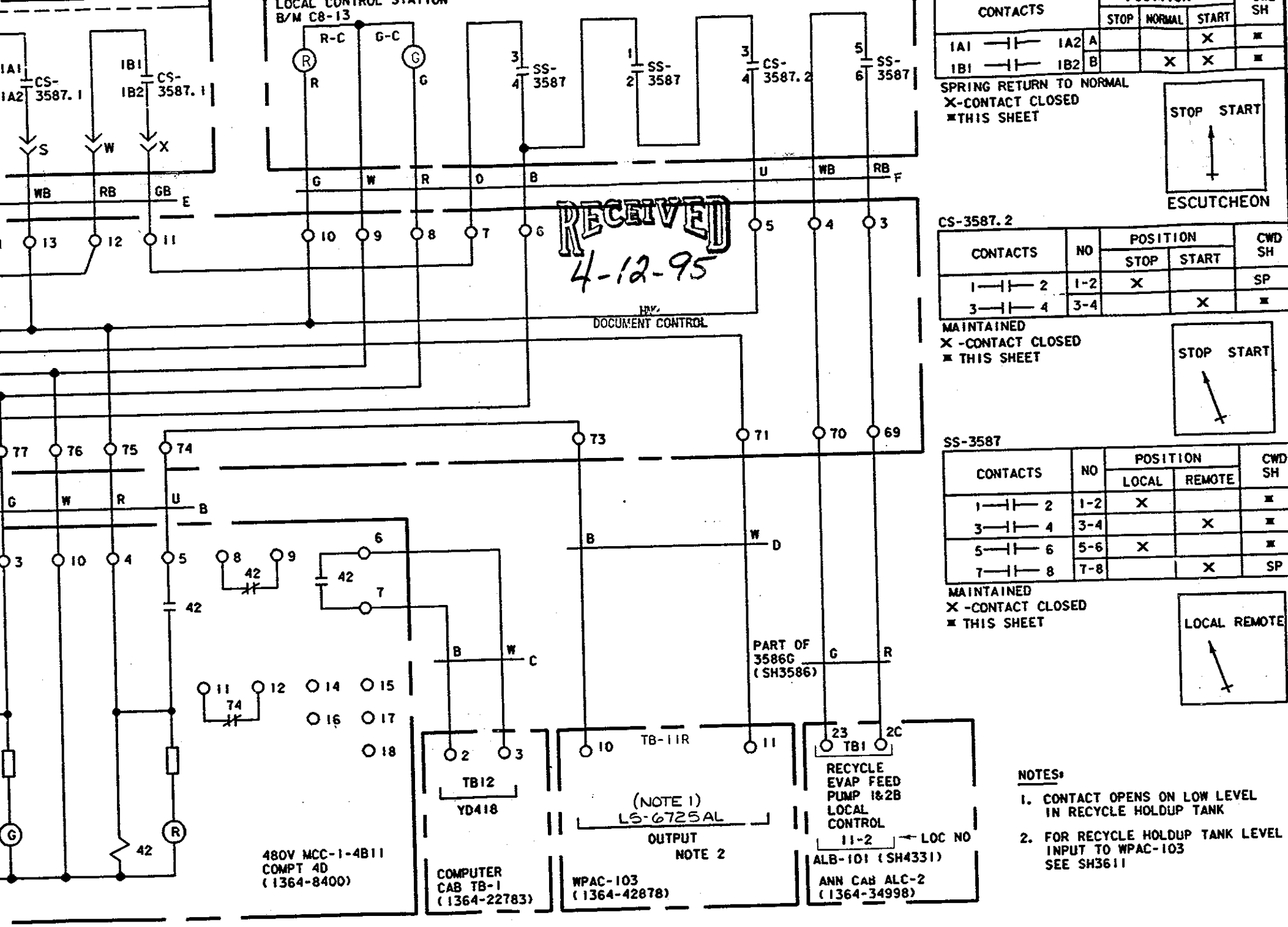
    e. Reposition manual valves as required by the clearance and place tag on handwheels of the valves covered by the clearance. For pumps, shut the discharge valve before shutting the suction valve.

    f. Deviations from the above sequence are allowed for safety, ALARA, or the deviation would not impact personnel or equipment safety.

11. Components operated from a control switch should have a Clearance Information Tag placed on the control switch if the switch does not form a part of the clearance boundary. For switches that are a part of the clearance boundary, a miniature clearance tag or a switch cap that will not obscure other switches or indications should be used.

12. For clearances that involve the removal of fuses, fuse control and accountability shall be according to site procedures.


MAP



CONTACTS			NO	POSITION			CWD SH
				STOP	NORMAL	START	
1A1	—	1A2	A			X	*
1B1	—	1B2	B		X	X	*

SPRING RETURN TO NORMAL
X-CONTACT CLOSED
*THIS SHEET

ESCUTCHEON

CS-3587.2

CONTACTS			NO	POSITION		CWD SH
				STOP	START	
1	—	2	1-2	X		SP
3	—	4	3-4		X	*

MAINTAINED
X -CONTACT CLOSED
* THIS SHEET

SS-3587

CONTACTS			NO	POSITION		CWD SH
				LOCAL	REMOTE	
1	—	2	1-2	X		*
3	—	4	3-4		X	*
5	—	6	5-6	X		*
7	—	8	7-8		X	SP

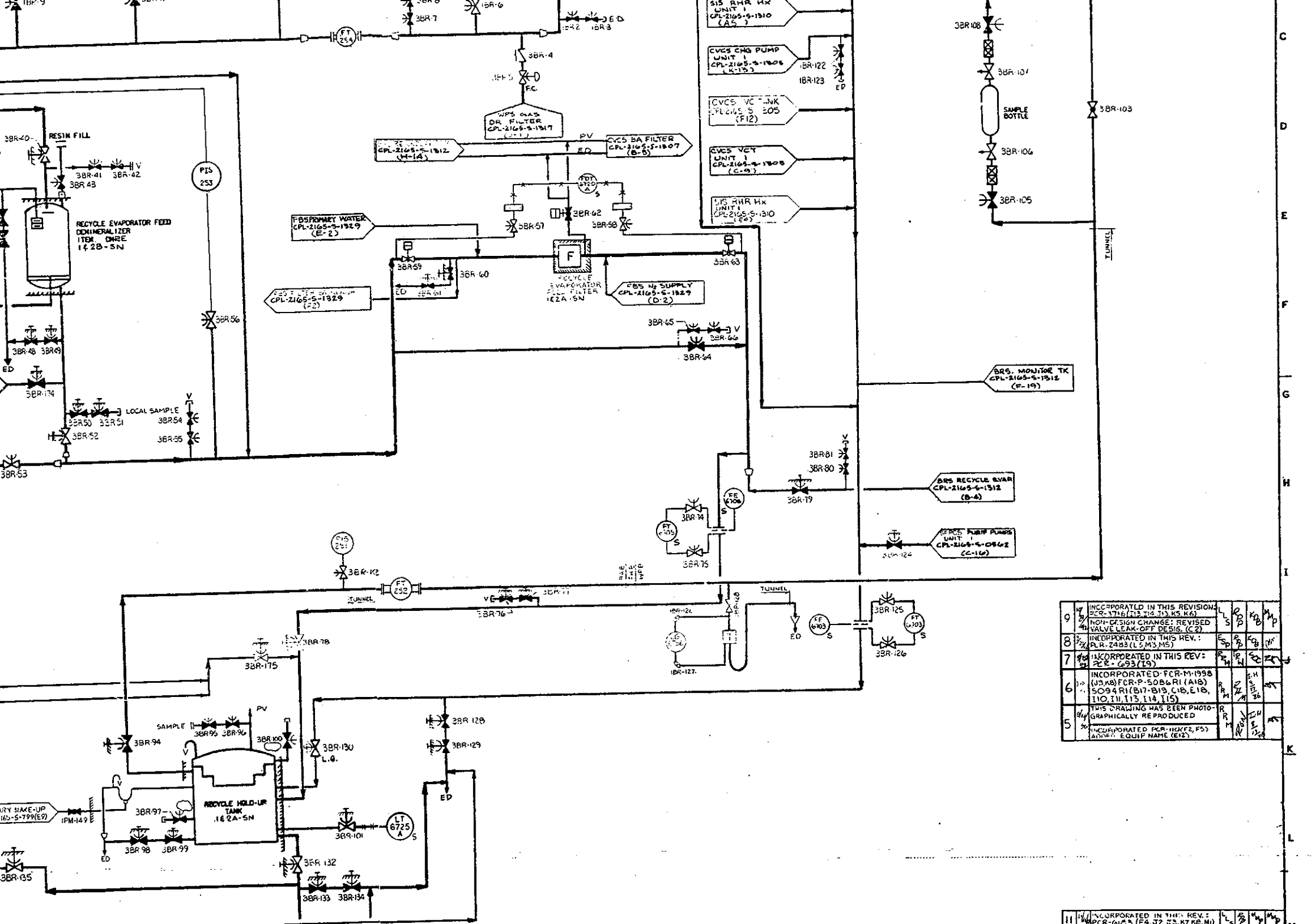
MAINTAINED
X -CONTACT CLOSED
* THIS SHEET

NOTES:

1. CONTACT OPENS ON LOW LEVEL IN RECYCLE HOLDUP TANK
2. FOR RECYCLE HOLDUP TANK LEVEL INPUT TO WPAC-103 SEE SH3611

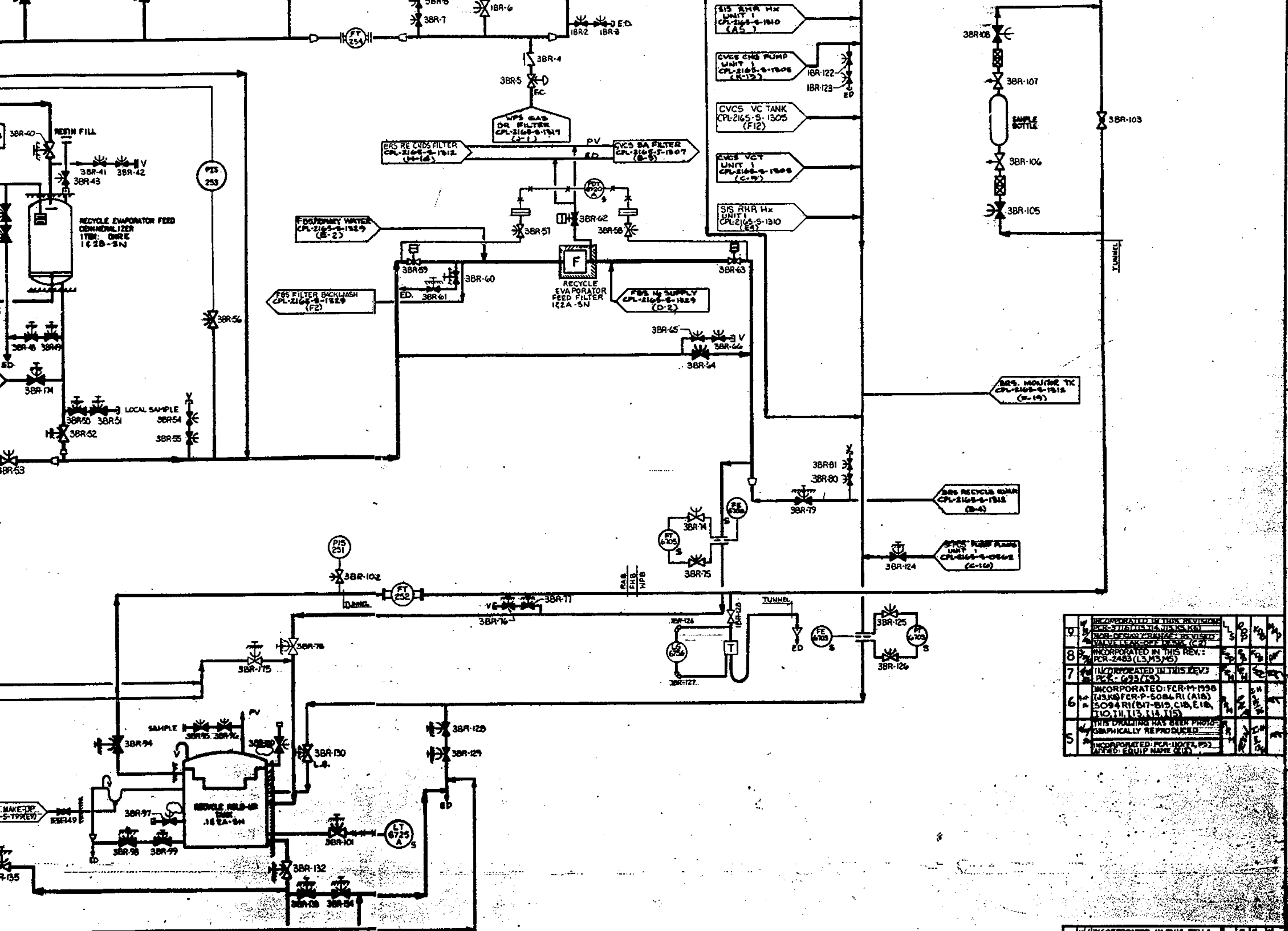
ORIGINALLY SIGNED OR INITIALED DRAWING

ESL 94033-72



9	12/31/86	INCORPORATED IN THIS REVISION: FCR-3716 (J13, J14, J15, K5, K6) NON-DESIGN CHANGE: REVISED VALVE LEAK-OFF DESIG. (C2)	L.S.	K.B.	K.B.	M.P.
8	7/24/86	INCORPORATED IN THIS REV.: PLR-2483 (L5, M3, M5)	E.S.P.	K.B.	K.B.	M.P.
7	6/20/86	INCORPORATED IN THIS REV: ECR-693 (I9)	R.M.	R.W.	R.W.	R.M.
6	3/31/86	INCORPORATED FCR-M-1998 (J3, K8) FCR-P-5086 R1 (A18) 5094 R1 (B17-B19, C18, E18, I10, I11, I13, I14, I15)	R.M.	R.W.	E.H. 3/31/86	R.M.
5	8/4/85	THIS DRAWING WAS BEEN PHOTOGRAPHICALLY REPRODUCED INCORPORATED FCR-11042 (F5) ADDED EQUIP NAME (E12)	R.M.	R.W.	E.H. 8/13/85	R.M.

11	11/4/86	INCORPORATED IN THIS REV.: FCR-0103 (F4, J2, K3, K7, K8, M1)	L.S.	K.B.	M.P.	M.P.


RECYCLE EVAPORATOR FEED DEMINERALIZER 1TBR DMRE 1&2B-SN
RESIN FILL
3BR-40
3BR-41
3BR-42
3BR-43
3BR-48
3BR-49
3BR-174
3BR50
3BR51
3BR52
3BR53
3BR54
3BR55
3BR-56
LOCAL SAMPLE
PIS 253
3BR-4
3BR-5
FC
3BR-7
1BR-6
1BR-2
1BR-3
E.D.
FT 254
BRS RE CNDS FILTER
CVCS BA FILTER
PV
ED
3BR-51
3BR-62
3BR-58
3BR-59
3BR-60
3BR-61
3BR-63
3BR-64
3BR-65
3BR-66
RECYCLE EVAPORATOR FEED FILTER 1&2A-SN
FBS FILTER BACKWASH CPL-2165-S-1329 (F2)
CVCS VC TANK CPL-2165-S-1305 (F12)
SIS RHR Hx UNIT 1 CPL-2165-S-1310 (E4)
CVCS CHG PUMP
CVCS VCT
1BR-122
1BR-123
3BR-108
3BR-107
SAMPLE BOTTLE
3BR-106
3BR-105
3BR-103
TUNNEL
BRS MONITOR TK
BRS RECYCLE
3BR81
3BR80
3BR-79
3BR-74
3BR-75
FT 6705
FE 6706
3BR-124
PIS 251
3BR-102
FT 252
RAB
FHB
WPB
3BR-77
3BR-76
VE
3BR-78
3BR-175
1BR-128
3BR-126
3BR-127
LG 6736
3BR-125
FE 6703
FT 6703
ED
3BR-94
SAMPLE
PV
3BR-130
L.O.
3BR-128
3BR-129
RECYCLE HOLD-UP TANK 1&2A-SN
3BR-97
3BR-98
3BR-99
MAKE-UP
3BR-101
LT 6725 A
3BR-132
3BR-133
3BR-134
3BR-135
9 INCORPORATED IN THIS REVISION
NON-DESIGN CHANGE REVISED VALVE LEAK-OFF DESIG. (C2)
8 INCORPORATED IN THIS REV.: PCR-2483 (L3,M3,M5)
7 INCORPORATED IN THIS REV.
6 INCORPORATED: FCR-M-1398 (J3,K6) FCR-P-5084 R1 (A18) 5094 R1 (B17-B19, C18, E18, I10, I11, I13, I14, I15)
5 THIS DRAWING HAS BEEN PHOTOGRAPHICALLY REPRODUCED
INCORPORATED: PCR-110 (F2, F3) ADDED: EQUIP NAME (E12)
C
D
E
F
G
H
I
J
K
L

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM RO-A.3

Perform Licensed Operator Actions to Establish a Liquid Waste Release

CANDIDATE: _____

EXAMINER: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

TASK: Perform Licensed Operator Actions to Establish a Liquid Waste Release

ALTERNATE PATH: None

FACILITY JPM NUMBER: NEW

KA: 2.3.11 IMPORTANCE: SRO NA RO 4.4

KA STATEMENT: Ability to control radiation releases

TASK STANDARD: Determines release rate is at or less than 80% of the Maximum Effluent Flow Rate on release permit.

PREFERRED EVALUATION LOCATION: SIMULATOR ___ IN PLANT ___

PREFERRED EVALUATION METHOD: PERFORM ___ SIMULATE ___

REFERENCES: OP-120.06.02, Waste Evaporator Condensate Tanks
OP-141, Cooling Tower and Reservoir Complex
OP-118, Radiation Monitoring System

VALIDATION TIME: 10 MINUTES TIME CRITICAL: No

CANDIDATE: _____

START TIME: _____ FINISH TIME: _____

PERFORMANCE TIME: _____ MINUTES

PERFORMANCE RATING: SAT _____ UNSAT _____

COMMENTS: _____

_____

_____

_____

EXAMINER: _____ _____
Signature Date

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

- Ensure CLG TWR MU BYP CHAN SEL in 'B' and SETPOINT SELECTOR in 'LOW'.
- Place 1MP-61 in MAN at 40%.
- Adjust CS-1908 to establish flow at approximately 7,000 gpm.
- Select 'GRID 1' on RM-11.

OP-120.06.02, "Waste Evaporator Condensate Tanks"
OP-141, "Cooling Tower and Reservoir Complex"
OP-118, "Radiation Monitoring System"

READ TO OPERATOR

INSTRUCTIONS TO CANDIDATE:

I will explain the initial conditions and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed or asked by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task, return the handout sheet I provide you.

INITIAL CONDITIONS:

Waste Evaporator Condensate Tank 1&2A is being aligned for discharge in accordance with OP-120.06.02, "Waste Evaporator Condensate Tanks."

INITIATING CUE(S):

You have been directed to coordinate with the Rad Waste Operator performing the discharge to complete any actions required in the Control Room.

START TIME: _____

*** DENOTES CRITICAL STEP**

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
1	NA	Obtains procedure	Obtains current copy of OP-120-06.02, OP-141, and OP-118	May not obtain copy of OP-120.06.02 since Rad Waste Operator provides instructions on actions to be taken.	
		NOTE: PROCEDURE STEPS LISTED ON THIS JPM IDENTIFY ONLY THOSE STEPS THAT WOULD BE PERFORMED IN THE CONTROL ROOM DURING A TANK RELEASE.			
CUE	OP-120.06.02, 5.2.2.6	**CUE: RADWASTE OPERATOR REQUESTS THAT YOU ADJUST THE COOLING TOWER TOTAL DILUTION FLOW RATE FOR THE FOLLOWING:** • **REQUESTED DISCHARGE FLOW RATE OF ≥ 12,000 GPM** • **DISCHARGE VALVE TRIP OF 11,000 GPM** • **CHANNEL 'A'** • **SETPOINT 'HIGH'**			
*2 ✓	**OP-141, 5.3.2.1**	**Place the CLG TWR MU BYP CHAN SEL switch and the SETPOINT SELECTOR switch in the positions for the low flow setpoint required by Radwaste Control Room**	**Places switches in the following positions:** • **CLG TWR MU BYP CHAN SEL – A** • **SETPOINT SELECTOR - HIGH**	Critical to establish automatic trip function at proper setpoint to terminate release in the event of low dilution flow.	
*3	**OP-141, 5.3.2.2**	**Adjust 1MP-76 (FCV-1968), CTMU/BD X-tie Flow Control Valve, to establish total required blowdown flow as indicated on FI-1968A & FI-1968B**	**Adjusts 1MP-76 until flow indicated on FI-1968A and FI-1968B indicates > 12,000 gpm**	Critical to establish proper dilution flow for release.	

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
4	OP-141, 5.3.2.3	Inform Radwaste Control Room that CTMU/Blowdown Crosstie flow is in service	Informs Radwaste Operator		
CUE	OP-120.06.02, 5.2.2.12	**CUE: RADWASTE OPERATOR REQUESTS THE OPERABILITY STATUS OF THE WMT AND WECT FLOW INSTRUMENT LOOP FT-6119 (TRANSMITTER AND RECORDER).**			S
5		Determine the operability status of FT-6119 transmitter and recorder	• Determines FT-6119 is operable by no OWPs associated with FT-6119 • Informs Radwaste Operator		S
	OP-120.06.02, 5.2.2.13	**CUE: RADWASTE OPERATOR REQUESTS THE OPERABILITY STATUS OF THE COOLING TOWER DISCHARGE FLOW INSTRUMENT FI-1968A OR FI-1968B.**			
6		Determine the operability status of FI-1968A & FI-1968B	• Determines FI-1968A & FI-1968B are operable by proper indication and no OWPs associated with FI-1968A & FI-1968B (~~channel check~~) • Informs Radwaste Operator		
	OP-120.06.02, 5.2.2.29	**CUE: RADWASTE OPERATOR REQUESTS A LICENSED OPERATOR TO PERFORM INDEPENDENT VERIFICATION THAT ~~THE~~ HK-6119, FD WST MON TK TO ENVIRON FLOW CONTROLLER IS AT OR LESS THAN 80% OF "MAX EFFLUENT FLOW RATE" OF 35 GPM PER ~~STEP 5.2.2.29 OF OP-120.06.02~~.** HK-6119			S
*7	**OP-118, 6.1.2.2.a**	**At the RM-11, select Waste Processing Building grid**	**Selects "Grid 4" or "Grid 6"**	Critical to permit reading process flow for correct channel.	S

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
***8**	**OP-118, 6.1.2.3.b**	**Select channel 4676**	**Select channel 4676 by entering "4676" on keypad and pressing "SEL"**	Critical to permit reading process flow for correct channel.	
***9**	**OP-118, 6.1.2.3.d (4)**	**Select a trend display for channel 4676**	**Select any trend display by pressing any one of the following:** • **TREND 10 MIN** • **TREND HOURLY** • **TREND DAILY**	Critical to permit reading process flow for correct channel.	
CUE		**CUE: WHEN "PROCESS FLOW NORMAL" VALUE READ IN FOLLOWING STEP, PROVIDE INFORMATION THAT VALUE INDICATED IS "25 GPM."**			
10		Read Process Flow Normal value to determine value within limits	Determines Process Flow Normal value indicates 25 gpm which is within limit of 28 gpm (80% of max effluent flow rate of 35 gpm)		
11		Sign verification of flow within limits	Authorizes telecom signature to be used		
		TASK COMPLETE			

STOP TIME: _____

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Waste Evaporator Condensate Tank 1&2A is being aligned for discharge in accordance with OP-120.06.02, "Waste Evaporator Condensate Tanks."

INITIATING CUE(S):

You have been directed to coordinate with the Rad Waste Operator performing the discharge to complete any actions required in the Control Room.

5.3 Startup of CTMU/Blowdown Crosstie System

5.3.1 Initial Conditions

1. CTMU in service per section 5.1 or section 8.1.

5.3.2 Procedural Steps

CAUTION

- There is no indication of actual CTMU Pump flow. Operators must maintain an awareness of flow requirements placed on CTMU Pumps. Starting a second CTMU Pump when running pump discharge pressure is less than 35 psig will prevent pump runout.
- Proper operation of 3MP-11, Recirc Vlv, should be verified as CTMU Pump flow is varied, to ensure CTMU Pump minimum flow requirements are met. CTMU flow to the basin on FI-1960A and Cooling Tower Bypass flow from FT-1968A are used to control 3MP-11 in AUTO. Other flow requirements on the CTMU Pump could cause CTMU Pump runout with 3MP-11 open in AUTO.
- The control signal for 3MP-11 is monitored by computer point FMP1961A, Total CTMU and Bypass Flow. FMP1961A is the total of FT-1960A, CTMU to SW Pump Chamber Unit 1 and FT-1968A, CTMU/BD X-Tie Total Flow.

1. Place the CLG TWR MU BYP CHAN SEL switch and the SETPOINT SELECTOR switch in the positions for the low flow setpoint required by Radwaste Control Room.

Channel Selector	Setpoint Selector	Low Flow Setpoint
CHAN A	LOW	4,000
CHAN A	HI	11,000
CHAN B	LOW	7,000
CHAN B	HI	15,000

NOTE:
- FI-1968A & B indicate total blowdown flow (a summation of flow through FT-1968A & B and FT-1974A & FU-1974B). Radwaste Control Room can call up individual flow transmitter flows on the WPS computer.
- Only FT-1968A & B feed CTMU Control Panel annunciator windows 1-1 and 2-1. CTMU/Blowdown Crosstie flow should be maintained greater than 500 gpm and less than 15,000 gpm by absence of alarm on CTMU Control Panel annunciator windows 1-1 and 2-1.

2. Adjust 1MP-76 (FCV-1968), CTMU/BD X-tie Flow Control Valve, to establish total required blowdown flow as indicated on FI-1968A & FI-1968B.

3. Inform Radwaste Control Room that CTMU/Blowdown Crosstie flow is in service.

5.2 R Discharging the Contents of the WECT A(B) to Cooling Tower Discharge (Reference 2.2.0.01.b)

5.2.1 Initial Conditions

1. R Waste Evaporator Condensate Tank is being recycled and has been sampled per Section 5.1 (Reference 2.5.0.01). ____

2. Cooling Tower Discharge is available to receive discharge. ____

3. No batch discharge being made from the following:

   - Treated Laundry and Hot Shower Tanks ____
   - Floor Drain Waste Monitor Tanks ____
   - Secondary Waste Sample Tanks ____

NOTE: The WECT can be discharged simultaneously with a continuous release of the Secondary Waste Sample Tank.

5.2.2 Procedural Steps

1. R If the statement "The above-named source has been sampled and analyzed but is NOT IN COMPLIANCE" appears in Part V AUTHORIZATION section of the Batch Liquid Effluent Permit, perform the following: (Reference 2.2.0.01.b)

   - Obtain Manager - Operation permission to make this release. ____
   - Attach supporting documentation from E&RC that release is in compliance of 10CFR20 and 10CFR50 regulations. ____

2. Check Tot-Body and Organ Doses from this release on the Batch Liquid Effluent Release Permit. If Tot-Body dose from this release exceeds $5x10^{-2}$ mrem or any Organ dose from this release exceeds $8x10^{-2}$ mrem, cancel the release per Section 7.2 and reprocess the tank UNLESS Manager - Operation gives permission to release tank above these guidelines. ____

3. Record the WECT Batch Liquid Effluent Permit number (located in top right corner of permit) on Attachment 3. ____

4. R Record the "MAX. EFFLUENT FLOW RATE" from the Batch Liquid Effluent Permit on Attachment 3 (Reference 2.4.0.02). ____

NOTE:
- The CTBD Channel and Setpoint selected must be the same one selected on Attachment 3. A value lower than the required flow rate will trip FLR DRN WST MON TKS DISCH ISOLATION VLV 3FD-421 shut.
- If all CTBD channels are inoperable and weir flow (4,000 gpm) has been selected for dilution water, any channel and setpoint can be selected that will allow ALB-106-14-6 LO CLG TWR BLDG FLOW to reset. This will allow 3FD-421 to open. Dilution water will be based on weir flow.

5. R Request the MCR to set the proper CTBD Channel and Setpoint as indicated on Attachment 3 (Reference 2.5.0.01). ____

Disch flow 12000 gpm
Disch Valve trip 11000 gpm
Chan A
Setpoint High

5.2.2 Procedural Steps (continued)

6. Request the MCR to adjust the Cooling Tower Total Dilution Flow Rate for the proper Channel and Setpoint settings as shown below: ____

Requested Flow Rate	Discharge Valve Trip	Channel	Setpoint
greater than 5,000	3,800	A	LOW
greater than 8,000	6,650	B	LOW
greater than 12,000	10,450	A	HIGH
greater than 16,000	14,250	B	HIGH

7. R Verify the following valves are in the KEYLOCKED SHUT position (Reference 2.5.0.01).

- TREATED L&HS TKS DISCH BLOCK VLV 3LHS-297 ____
- FLR DRN WST MON TKS DISCH BLOCK VLV 3FD-422 ____
- SEC WST SAMPLE TK DISCH BLOCK VLV 3SWT-152 (3SWT-152 must be KEYLOCKED SHUT unless a Continuous Release of the Secondary Waste Sample Tank is in progress.) ____

8. Ensure shut the following valves:

- FLOOR DRN WST MON TANK A PUMP DISCH VLV 3FD-368 ____
- FLOOR DRN WST MON TANK B PUMP DISCH VLV 3FD-403 ____
- 3FD-408, WMT Pump Discharge To WPS WHT Isolation Valve ____
- 3FD-406, WMT Pump Discharge To Condensate Storage Tank ____

9. R If REM-3541 is OPERABLE, perform the following steps: (Reference 2.5.0.01)

a. Ensure the REM-3541 Sample Pump is operating by observing FLOWING light is illuminated on Channel 4676. ____

b. Perform Waste Monitor Tanks and Waste Evaporator Condensate Tanks Radiation Monitor 3541 Source Check (OP-119, Section 8.0) and record the results on Attachment 3. ____

NOTE: The ODCM software calculates a nuclide specific response setpoint, which is based on the sum of responses for each nuclide. The setpoint equates all gamma-emitting nuclides to Cs-137, to which the monitor is calibrated. The setpoint is listed in terms of Cs-equiv and the units are μCi/ml.

c. Record the "MAX SETPOINT" in Cs/equiv (from Batch Liquid Effluent Permit) on Attachment 3. ____

d. Record the "ALERT SETPOINT" in Cs/equiv (from Batch Liquid Effluent Permit) on Attachment 3. ____

e. Using Supervisor Key, enter the "MAX SETPOINT" in Cs/equiv from the Batch Liquid Effluent Permit into RM-11 Channel 4676 Channel Item 9 (Channel High Alarm Limit). Record on Attachment 3. ____

5.2.2 Procedural Steps (continued)

f. Using Supervisor Key, enter the "ALERT SETPOINT" in Cs/equiv from the Batch Liquid Effluent Permit into RM-11 Channel 4676 Channel Item 10 (Channel Alert Alarm Limit). Record on Attachment 3. ____

g. Using Supervisor Key, perform a database verification for channel 4676 (REM-3541) as follows:

(1) Key 4676 and press SEL. ____

(2) Press LIT - GRID 5 - SEL. ____

NOTE: Monitor Items and Channel Items which are not listed in the RMDSL (Radiation Monitoring System Data Sheet Library) are either fixed values which cannot be changed or values which are not used at SHNPP. Monitor Items and Channel Items which are not listed in the RMDSL do not need to be validated in the next steps.

(3) Ensure Monitor Items 1 - 55 and channel items 9 - 20 for 4676 which are listed in the RMDSL match the RMDSL Values. ____

(4) Key 56 and press SEL. ____

(5) Ensure Monitor Items 56 - 84 for 4676 match the RMDSL values. ____

(6) Key -22 (minus sign and 22) and press SEL. ____

(7) Ensure Channel Items 22 - 24 for 4676 match the RMDSL values. ____

(8) Press LIT - GRID 1 - GRID 4 - GRID 6 - GRID 3 - SEL. ____

(9) Enter the following password using the RM-11 key pad: 2 - 4 - 0 (240) and SEL. ____

(10) Key 3 and SEL to access the channel items. ____

(11) Ensure Channel Items 1 and 32 match the RMDSL values. ____

h. If any discrepancy is found during the database verification, contact HP. ____

i. Perform an Independent Verification that the "MAX SETPOINT" and the "ALERT SETPOINT" from the Batch Liquid Effluent Permit has been entered on the RM-11 Channel 4676, (Items 9 and 10). Record on Attachment 3. ____

5.2.2 Procedural Steps (continued)

10. If REM-3541 is INOPERABLE, perform the following steps:
R

a. Ensure Chemistry has completed the Confirmation of Duplicate Sampling and Release Rate Calculations for Inoperable Monitor Form from CRC-854 and forwarded form with Release Package. ____

b. Using Supervisor Key, enter 0.00E+00 into RM-11 Channel 4676 Channel Item 9 (High Alarm Setpoint). ____

c. Using Supervisor Key, enter 0.00E+00 into RM-11 Channel 4676 Channel Item 10 (Alert Alarm Setpoint). (Should be 0.00 E^{+0}) ____

11. Record the WECT Batch Release Number on UR-6119, FD WST MONITOR TK TO CLG TWR BLOWDOWN FLOW, chart paper. ____

12. Request the operability status of the WMT and WECT Flow Instrument
R Loop FT-6119 (transmitter and recorder) from the MCR. Record instrument operability status on Attachment 3 (Reference 2.5.0.01). ____

13. Request the operability status of the Cooling Tower Discharge
R Flow Instrument FI-1968A or FI-1968B from the MCR. Record instrument operability status on Attachment 3 (Reference 2.5.0.01). ____

14. Review Attachment 3 and sign "Requested By". ____

15. Take Attachment 3, Waste Evaporator Condensate Tank Discharge Log and the Liquid Radioactivity Waste Release Permit to the Superintendent - Shift Operations for approval and obtain proper key to make release. ____

16. Record the WMT/WECT "FQ-6119 Start" reading on Attachment 3. ____

NOTE: The "Start Tank Level" in the next step may be different than WECT level recorded earlier for mixing calculations due to WECT discharge piping flush.

17. Record the "LI-6025 A(B) "Start" in percent and gallons on Attachment 3. ____

18. Ensure HK-6119, FD WST MON TK TO ENVIRON, controller is set at 0% so valve 3FD-414 is SHUT. ____

5.2.2 Procedural Steps (continued)

19. If Cooling Tower Discharge Flow Instruments FI-1968A and FI-1968B are both INOPERABLE, perform these steps:

    a. Initiate OP-120.10.04 Attachment for Cooling Tower Discharge Flow Instrumentation Inoperable Log, by recording the "Batch Liquid Effluent Permit Number" and the "Start Date." ____

    b. Estimate the Total CT Discharge Dilution Flow per OP-120.10.04 Attachment for Cooling Tower Discharge Flow Instrumentation Inoperable Log and record results in the "Pre-Release" Section. ____

    c. Verify the Total CT Discharge Dilution Flow Pre-Release value is greater than the "DILUTION FLOW AVAIL" value recorded on the Discharge Permit Request Section of Attachment 3. ____

    d. If the Total CT Discharge Dilution Flow is not high enough in Step 5.2.2.019.c, request MCR to increase the Cooling Tower Discharge Rate to appropriate flow. Record new flow on OP-120.10.04 Attachment for Cooling Tower Discharge Flow Instrumentation Inoperable Log. ____

20. Verify recorder UR-6119, FD WST MONITOR TK TO CLG TWR BLOWDOWN FLOW, is inking and advancing properly. Record results on Attachment 3. ____

21. Place the WECT A(B) PUMP DISCH VLV 3WE-221 (3WE-247) switch to OPEN. ____

CAUTION

Radioactive liquids should never be discharged to the Waste Neutralization System. Discharge Permit is based on dilution water from Cooling Tower Blowdown. In addition, discharge to Waste Neutralization would cause a buildup of contamination in the Waste Neutralization Setting Basin.

---

22. Place the FLR DRN WST MON TANKS DISCH VALVE 3FD-426/3FD-427 switch to the TO CLG TOWER position. ____

23. Place the FLR DRN WST MON TKS DISCH ISOLATION VLV 3FD-421 switch to OPEN. ____

24. Insert key and place the FLR DRN WST MON TANKS DISCH BLOCK 3FD-422 to Keylocked OPEN. ____

25. Perform independent verification that FLR DRN WST MON TANKS DISCH VALVE 3FD-426/3FD-427 switch is in the TO CLG TOWER position. ____

26. Perform independent verification that FLR DRN WST MON TANKS DISCH BLOCK 3FD-422 is Keylocked OPEN. ____

27. R If REM-3541 is INOPERABLE, verify the discharge flow path by completing Attachment 6, Waste Evaporator Condensate Tanks Discharge Valve Lineup Checklist. Inform Unit SCO per OWP-RM-10, LCO Action Log Sheet. (Reference 2.5.0.01) ____

5.2.2 Procedural Steps (continued)

NOTE: A Licensed Operator must be able to independently verify the Release Flow in the next step. This can be done locally in the RWCR or by obtaining reading from a RM-11 by entering Channel 4676, depressing a Trend Key and reading the Process Flow N.

28. Adjust setpoint on HK-6119 FD WST MON TK TO ENVIRON flow controller until flow is at 80% of "MAX. EFFLUENT FLOW RATE" specified on Attachment 3, as indicated on Flow Recorder UR-6119 (Computer Point FA-429, FX-433 or Flow Integrator FQI-6119 may be used to estimate flow if UR-6119 is INOPERABLE). Log on Attachment 3. ____

29. R Request a licensed Operator to perform independent verification that the HK-6119 FD WST MON TK TO ENVIRON flow controller is at or less than 80% of "MAX. EFFLUENT FLOW RATE" (either by observing HK-6119 flow locally in RWCR or by observing Process Flow N on RM-11 channel 4676) specified on Attachment 3 and log on Attachment 3. If flow was verified by observing RM-11 Process Flow N, then licensed Operator's signature can be done per telecom. (Reference 2.4.0.02). ____

CAUTION

The WECT Pump A(B) Recirculation Valve 3WE-218 (3WE-244) must remain a minimum of one turn open to prevent operating the pump at shutoff head if the release trips.

---

30. R If needed, throttle 3WE-218 (3WE-244), Waste Evaporator Condensate Tank Pump Recirculation Valve to keep WECT Pump running while checking the flow rate to ensure flow is within proper release limits. (Valve must remain at least one turn open) (Reference 2.4.0.03). ____

31. Record the "Discharge Start Date" and "Time" on Attachment 3. ____

32. Notify Superintendent - Shift Operations that release has started. ____

33. Notify HP that WECT release has started. ____

34. R If Waste Monitor Tanks and Waste Evaporator Condensate Tanks Flow instrument loop 6119 is OPERABLE and a channel check has not been performed this shift, perform Waste Monitor Tanks and Waste Evaporator Condensate Tanks Discharge Flow Instrumentation Channel Check (Section 8.0) at this time. (If a channel check has already been performed this shift, results of previous channel check should be recorded on Attachment 3 and another one does not need to be performed this shift.) Record results on Attachment 3. (Reference 2.5.0.01). ____

35. R If WMT and WECT FT-6119 (Transmitter, Recorder, and Indicator) is INOPERABLE, estimate flow rate at least once per two hours during release. Document estimated flow on Attachment 5, Waste Evaporator Condensate Tank Discharge Flow Instrument Inoperable Log (Reference 2.5.0.01). ____

5.2.2 Procedural Steps (continued)

36. If either Cooling Tower Discharge Flow Instrument is OPERABLE, perform this step;

    a. Perform Cooling Tower Discharge Flow Instrumentation Channel Check (OP-120.10.04, Section 8.0). (If a channel check has already been performed this shift, another one does not need to be performed.) Record results on Attachment 3. (Reference 2.5.0.01). ____

    b. Record the current Cooling Tower Discharge Total Dilution on Attachment 3. ____

    c. If CTBD Discharge Flow Instrument Channel Check passed, go to step 5.2.2.038. ____

37. R If Cooling Tower Discharge Flow Instrument is INOPERABLE, perform the following steps (Reference 2.5.0.01):

    a. Estimate the Total CT Discharge Dilution Flow rate at least once per two hours during release. ____

    b. Document estimated flow on OP-120.10.04 Attachment for Cooling Tower Discharge Flow Instrument Inoperable Log. ____

    c. Enter "Inoperable, see Cooling Tower Discharge Flow Estimates" on Attachment 3 in the "Cooling Tower Discharge Total Dilution Flow Rate" blanks. ____

38. During release, if Cooling Tower Dilution Flow is lost as indicated by ALB-106-14-6 LO CLG TWR BLDN FLOW, perform the following steps:

    a. Ensure FLR DRN WST MON TKS DISCH ISOLATION VLV 3FD-421 has SHUT. ____

    b. Keep WECT Pump running to ensure mixing through recirculation line. ____

    c. Throttle open 3WE-218 (3WE-244) WECT Pump A(B) Recirculation Valve to ensure adequate recirculation flow. ____

    d. Record in Attachment 3 Comment Section the time release is stopped. ____

    e. When Cooling Tower Dilution flow is restored, place the FLR DRN WST MON TKS DISCH ISOLATION 3FD-421 switch to OPEN. ____

5.2.2 Procedural Steps (continued)

f. Record in Attachment 3 Comment Section the time release is restarted.

CAUTION

The WECT Pump A(B), Recirculation Valve 3WE-218 (3WE-244) must remain a minimum of one turn open to prevent operating the pump at shutoff head if the release trips.

---

g. R Throttle 3WE-218 (3WE-244) WECT Pump A(B) Recirculation Valve as needed to keep WECT Pump running while checking the flow rate to ensure flow is within proper release limits. (Valve must remain at least one turn open) (Reference 2.4.0.03).

39. During the release of the Waste Evaporator Condensate Tank, REM-3541 should be monitored. If REM 3541 goes into an Alert or High Alarm condition during release, perform the following steps:

a. If the monitor goes into alert alarm, operator should observe the reading to see if it is continuing to increase. If it continues to approach the High Alarm limit, proceed to Step 5.2.2.039.b.

b. If the monitor approaches or goes into a High Alarm condition, perform the following steps:

(1) Ensure the FLR DRN WST MON TKS DISCH ISOLATION VLV 3FD-421 is SHUT.

NOTE: A new Batch Liquid Effluent Permit must be initiated before discharging the remaining contents of the Waste Evaporator Condensate Tank.

(2) Place the WECT A(B) DISCH VLV 3WE-221 (3WE-247) switch to SHUT.

(3) Adjust the setpoint for HK-6119 on the FD WST MON TK TO ENVIRONMENT flow controller to 0%.

(4) Throttle open 3WE-218 (3WE-244), Waste Evaporator Condensate Pump Recirculation Valve as needed to obtain proper pump discharge pressure and adequate recirculation flow.

(5) Notify the Superintendent - Shift Operations that the WECT Release has terminated due to REM-3541 approaching or went into high alarm.

(6) Request Health Physics to verify the validity of the alarm.

5.2.2 Procedural Steps (continued)

NOTE: If the RMS Technician determines REM-3541 is not operating as expected, the recommendation will be made to the Main Control Room to declare REM-3541 INOPERABLE.

(7) If the Radiation Monitor alarm is determined to be valid, perform the following:

1 Open 1DW-709, WECT/WMT REM-3541 Disch Line DW Flush/Rinse Vlv. ____

2 Open 1IA-2063-I5, Instrument Air supply to 3DW-52, Flr Drn REM-3541 Rinse Hdr Demin Wtr Vlv and shut drain pot. ____

3 Place the FLR DRN DEMIN WTR RINSE/FLUSH VALVE 3DW-52/3FD-420 switch to FLUSH. Allow to flush for 30 seconds. ____

4 After 30 second flush, place the FLR DRN DEMIN WTR RINSE/FLUSH VALVE 3DW-52/3FD-420 switch to ISOLATE. ____

5 Shut 1DW-709, WECT/WMT REM-3541 Disch Line DW Flush/Rinse Vlv. ____

6 Shut 1IA-2063-I5, Instrument Air supply to 3DW-52, Flr Drn REM-3541 Rinse Hdr Demin Wtr Vlv and open drain pot. ____

7 Initiate a CR per CAP-NGGC-0001. ____

40. Go to Section 7.1 to shutdown the WECT A(B) Release. ____

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Waste Evaporator Condensate Tank 1&2A is being aligned for discharge in accordance with OP-120.06.02, "Waste Evaporator Condensate Tanks."

INITIATING CUE(S):

You have been directed to coordinate with the Rad Waste Operator performing the discharge to complete any actions required in the Control Room.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM SRO-A.3

Radiological Controls

CANDIDATE: _____

EXAMINER: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

TASK: Radiological Controls

ALTERNATE PATH: NA - Questions

FACILITY JPM NUMBER: NA - Questions

KA: 1) 2.3.6 IMPORTANCE: SRO 1) 3.1 RO NA
2) 2.3.4 2) 3.1 ____

KA STATEMENT:
1) Knowledge of the requirements for reviewing and approving release permits
2) Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized

TASK STANDARD: NA - Questions

PREFERRED EVALUATION LOCATION: SIMULATOR ___ IN PLANT ___

PREFERRED EVALUATION METHOD: PERFORM ___ SIMULATE ___

REFERENCES: OP-120.06.02, Waste Evaporator Condensate Tanks
Offsite Dose Calculation Manual
PEP-330, Radiological Consequences

VALIDATION TIME: 15 MINUTES TIME CRITICAL: No

CANDIDATE: _____

START TIME: _____ FINISH TIME: _____

PERFORMANCE RATING: SAT _____ UNSAT _____

COMMENTS: _____

_____

EXAMINER: _____ _____
Signature Date

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

OP-120.06.02, "Waste Evaporator Condensate Tanks"
Offsite Dose Calculation Manual
PEP-330, "Radiological Consequences"
OWP-RM, "Radiation, Effluent, and Explosive Gas Monitoring"

START TIME: _____

EXAMINER'S ANSWER KEY
QUESTION #1

Radwaste is making preparations to discharge the Waste Evaporator Condensate Tank (WECT) when it is determined that FT-6119, WMT / WECT Discharge Flow, is inoperable.

What are the license requirements that must be met to allow the WECT to be discharged with FT-6119 inoperable?

ANSWER:

ODCM 3/4.3.3.10, Radioactive Liquid Effluent Monitoring Instrumentation, Table 3.3-12, Action 38 requires that the **flow rate be estimated at least once per 4 hours during the actual release** (information can also be determined by referencing OWP-RM-14)

OP-120.06.02 requires that the flow rate be estimated at least once per 2 hours during the actual release and that the estimated flow be documented on Attachment 5, Waste Evaporator Condensate Tank Discharge Flow Instrument Inoperable Log

(Required response underlined and bolded)

REFERENCES:

OP-120.06.02, "Waste Evaporator Condensate Tanks"
OWP-RM, "Radiation, Effluent, and Explosive Gas Monitoring"
Offsite Dose Calculation Manual

KA / IMP / STATEMENT:

2.3.6 / SRO 3.1 / Knowledge of the requirements for reviewing and approving release permits

STOP TIME: _____

START TIME: _____

EXAMINER'S ANSWER KEY
QUESTION #2

The plant experienced a loss of coolant accident and cold leg recirculation operations were established per EOP EPP-010, "Transfer to Cold Leg Recirculation." Prior to the accident RHR Pump 1B-SB had been out-of-service due to a damaged bearing. RHR Pump 1A-SA has just failed.

An emergency entry for repairs is to be made into the RHR Pump 1A-SA room. HP reports general area radiation levels in the room are approximately 20 Rem/hour. Maintenance estimates that it will take a 3-person team approximately 90 minutes to make the necessary repairs.

The Maintenance Manager has supplied a list of 5 personnel that are available on site and qualified to perform the repairs. The 5 persons are:

1) Anita Andrews is a 47-year-old married female, states she is not pregnant, she has volunteered to make the entry, and she is fully aware of the radiological risks involved. She has worked at the Harris plant for 22 years, the last 9 as a member of the Maintenance department.
2) Bob Ballew is a 32-year-old married male, he has volunteered to make the entry, and he is fully aware of the radiological risks involved. He has worked at the Harris plant as a member of the Maintenance department since he left another nuclear utility 3 years ago.
3) Charles Cotton is a 51-year-old single male and although he has not volunteered to make the entry, he is fully aware of the radiological risks involved. He is the most knowledgeable of the 5 persons, having been a member of the Maintenance department for his entire 28 years at the Harris plant.
4) David Deaver is a 37-year-old married male, he has volunteered to make the entry, and he is fully aware of the radiological risks involved. He has worked at the Harris plant for 15 years, the last 11 years as a member of the Maintenance department since he left Operations.
5) Frank Furstenburg is a 56-year-old single male, he has volunteered to make the entry, and he is fully aware of the radiological risks involved. Although he has only worked at Harris for the past 2 years, both years were spent in the Maintenance department, and he has experience in these situations, having made a similar entry 17 years ago at another nuclear utility.

Which 3 of these 5 persons should be selected to make the emergency entry, **AND** why should these 3 be picked?

ANSWER:

Anita Andrews, Bob Ballew, and David Deaver should be selected to make this entry. In events where exposure levels exceeding 25 TEDE would be required **all personnel must be volunteers (eliminating Charles Cotton)**, they should have a full awareness of the risks involved (all meet this requirement), and **exposure under these conditions should be limited to once in a lifetime (eliminating Fred Furstenburg)**. Although it is preferable to use personnel over the age of 45, age should only be considered where all other factors are equal. Females should not be considered if they are declared pregnant, which Anita Andrews has not done.

(Required response underlined and bolded)

REFERENCES:

PEP-330, "Radiological Consequences"

KA / IMP / STATEMENT:

2.3.4 / SRO 3.1 / Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized

STOP TIME: _____

CANDIDATE QUESTION SHEET

QUESTION #2

(TO BE RETURNED TO EXAMINER UPON COMPLETION)

The plant experienced a loss of coolant accident and cold leg recirculation operations were established per EOP EPP-010, "Transfer to Cold Leg Recirculation." Prior to the accident RHR Pump 1B-SB had been out-of-service due to a damaged bearing. RHR Pump 1A-SA has just failed.

An emergency entry for repairs is to be made into the RHR Pump 1A-SA room. HP reports general area radiation levels in the room are approximately 20 Rem/hour. Maintenance estimates that it will take a 3-person team approximately 90 minutes to make the necessary repairs.

The Maintenance Manager has supplied a list of 5 personnel that are available on site and qualified to perform the repairs. The 5 persons are:

1) Anita Andrews is a 47-year-old married female, states she is not pregnant, she has volunteered to make the entry, and she is fully aware of the radiological risks involved. She has worked at the Harris plant for 22 years, the last 9 as a member of the Maintenance department.
2) Bob Ballew is a 32-year-old married male, he has volunteered to make the entry, and he is fully aware of the radiological risks involved. He has worked at the Harris plant as a member of the Maintenance department since he left another nuclear utility 3 years ago.
3) Charles Cotton is a 51-year-old single male and although he has not volunteered to make the entry, he is fully aware of the radiological risks involved. He is the most knowledgeable of the 5 persons, having been a member of the Maintenance department for his entire 28 years at the Harris plant.
4) David Deaver is a 37-year-old married male, he has volunteered to make the entry, and he is fully aware of the radiological risks involved. He has worked at the Harris plant for 15 years, the last 11 years as a member of the Maintenance department since he left Operations.
5) Frank Furstenburg is a 56-year-old single male, he has volunteered to make the entry, and he is fully aware of the radiological risks involved. Although he has only worked at Harris for the past 2 years, both years were spent in the Maintenance department, and he has experience in these situations, having made a similar entry 17 years ago at another nuclear utility.

Which 3 of these 5 persons should be selected to make the emergency entry, **AND** why should these 3 be picked?

CANDIDATE QUESTION SHEET

QUESTION #1

(TO BE RETURNED TO EXAMINER UPON COMPLETION)

Radwaste is making preparations to discharge the Waste Evaporator Condensate Tank (WECT) when it is determined that FT-6119, WMT / WECT Discharge Flow, is inoperable.

What are the license requirements that must be met to allow the WECT to be discharged with FT-6119 inoperable?

A-3 Ref

WR/JO Number: _____
Clearance Number: _____

1. OWP - RM-14

2. System: Radiation, Effluent, and Explosive Gas Monitoring

3. Component: Liquid Effluent Flow Monitors

4. Scope of Work: Maintenance on Liquid Effluent Flow Monitor (circle one)

TL & HS Tank Pump to CT Blowdown	(TL&HS)	FT-*1WL-6193
Waste Monitor Tk Pumps Disch	(WMT/WECT)	FT-21WL-6119
S.W. Sample Tank Pumps Discharge	(SWST)	FT-21WS-8513
CTMU/BD X-Tie Total Flow	(CT Bypass)	FT-01MP-1968A/B
Cooling Tower Weir Flow	(CT Blowdown)	FT-01MD-1974A/FU-01MD-1974B

5. Applicable Requirement: ODCM, Appendix D, Section D.1, Operational Requirement 3.3.3.10 (At all times)

6. Precautions: Work on FT-1968A/B, FT-1974A, or FU-1974B will each affect the respective flow indicator on the Cooling Tower Makeup Panel. If a failed CTMU channel is selected during a Radioactive Liquid Release, then the release may trip due to low dilution flow indication.

7. LCO Action Log initiated on Sheet 2. _____ / _____
Signature Date

8. Component lineups completed. N/A _____ / _____
Signature Date

9. Testing required on redundant equipment while the component is inoperable. None

10. Testing/Action required to restore operability.

1.	MST-I0301 for FT-*1WL-6193	_____ / _____
2.	MST-I0302 for FT-21WL-6119	_____ / _____
3.	MST-I0307 for FT-21WS-8513	_____ / _____
4.	MST-I0310/I0311 for FT-01MP-1968A/B	_____ / _____
5.	MST-I0308/I0309 for FT-01MD-1974A/ FU-01MD-1974B	_____ / _____
6.	OST-2044	_____ / _____

Signature Date

11. LCO Action Log completed. _____ / _____
Signature Date

12. Component lineups restored. N/A _____ / _____
Signature Date

13. Remarks: _____

14. Reviewed By: _____ _____
Unit SCO Date

After receiving the final review signature, this OWP becomes a QA RECORD and should be submitted to Document Services.

LCO Action Log

1. Person initialing verifies stated time requirements are met or notes reasons why not in the remarks.

LCO Action Requirements	Completed		
	Initials	Time	Date
Time/Date Component Inoperable: _____			
LCO Management Program updated.			
Name of Chemistry Technician notified: _____			
Name of Radwaste Control Room Operator notified: _____			
Estimate flow at least every 4 hours per OP-120.01.02, OP-120.06.02, OP-120.09.03 or OP-120.10.04	See Sheet 3.		
NOTE: For Cooling Tower flow monitors, the following two actions are only required if both trains of monitoring are inoperable. They may be marked N/A if only one channel is inoperable.			
Exert best effort to return the instrument to OPERABLE status within 30 days.			
If not restored to OPERABLE status within 30 days, initiate a CR that an explanation in the next Radioactive Effluent Release Report is required pursuant to ODCM, Appendix F, Section F.2 of why this inoperability was not corrected in a timely manner.			
Time/Date Operable: _____			
LCO Management Program updated.			
Name of Chemistry Technician notified: _____			
Name of Radwaste Control Room Operator notified: _____			

Remarks: _____

LCO Action Log

1. Person initialing for OPS verifies that flow is estimated at least every 4 hours or notes reasons why not in the remarks (OP-120.01.02, OP-120.06.02, OP-120.09.03, or OP-120.10.04). This verification may be done per telecon.

2. If necessary, multiple copies of this page may be used.

Time/Date Component Inoperable: _____

Completed		OPS Initials	Comments
Time	Date		

Remarks: _____

Limitations for Lifesaving and Emergency Reentry/Repair Actions

1. A Declared Pregnant Woman shall not take part in these actions.

2. Internal exposure should be minimized by the use of the most appropriate respiratory protection or ALARA practice whenever possible, and contamination should be controlled by the use of protective clothing when practical.

3. Emergency worker exposures during lifesaving and repair/reentry efforts should be limited to the following:

DOSE LIMIT (rem TEDE)	ACTIVITY	CONDITION
5	All	All
10	Protecting valuable property	Lower dose not practicable
25	Lifesaving or protection of large populations	Lower dose not practicable
>25	Lifesaving or protection of large populations	Only on a voluntary basis to persons fully aware of the risks involved

4. Limit dose to the lens of the eye to three (3) times the above values and doses to any other organ (including thyroid, skin and body extremities) to ten (10) times the above values.

5. Entry into radiation fields of greater than 25 rem/hr or exposure in excess of 5 rem TEDE shall not be permitted unless specifically authorized by the Site Emergency Coordinator.

6. In emergency situations where a exposure in excess of 25 rem TEDE would be required, the following additional criteria shall be considered:

   a. Rescue personnel must be volunteers.

   b. Rescue personnel should have a full awareness of the risks involved (See Attachment 2).

   c. Other things being equal, volunteers above the age of 45 should be selected whenever possible for the purpose of avoiding unnecessary genetic effects.

   d. Exposure under these conditions should be limited to once in a lifetime, and shall be included when calculating future lifetime permissible exposures.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM SRO-A.4

Perform an Emergency Action Level Classification and Recommend Protective Actions

CANDIDATE: _____

EXAMINER: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

TASK: Perform an Emergency Action Level Classification and Recommend Protective Actions

ALTERNATE PATH: None

FACILITY JPM NUMBER: SRO-A.4 (NRC Exam – Dec 2000)

KA: 2.4.41 / 2.4.44 IMPORTANCE: SRO 4.1 / 4.0 RO NA

KA STATEMENT: Knowledge of the emergency action level thresholds and classifications. / Knowledge of emergency plan protective action recommendations.

TASK STANDARD: General Emergency determined due to three (3) fission product barriers breached (EAL 2-1-4) AND PARs completed satisfactorily.

PREFERRED EVALUATION LOCATION: SIMULATOR ___ IN PLANT ___

PREFERRED EVALUATION METHOD: PERFORM ___ SIMULATE ___

REFERENCES:
- Emergency Action Level Flowpath
- PEP-110, Emergency Classification and Protective Action Recommendations

TC Classify 15 min

VALIDATION TIME: (15) MINUTES TIME CRITICAL: ~~NO~~ PAR T. Critical 15 min ~~PAR Time~~

CANDIDATE: _____

START TIME: _____ FINISH TIME: _____

PERFORMANCE TIME: _____ MINUTES

NOTE: Performance Rating based on 20% for satisfactory classification during simulator scenario, 20% for satisfactory classification during JPM, and 60% for satisfactory protective action recommendation during JPM.

PERFORMANCE RATING: SAT _____ UNSAT _____

COMMENTS: _____

_____

EXAMINER: _____ _____
Signature Date

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

PEP-110, "Emergency Classification and Protective Action Recommendations," Attachment 3, "Protective Action Recommendations Process"

READ TO OPERATOR

INSTRUCTIONS TO CANDIDATE:

I will explain the initial conditions and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed or asked by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task, return the handout sheet I provide you.

INITIAL CONDITIONS:

Following a reactor trip and safety injection, EOP-PATH-2 is being implemented.

The following plant conditions are noted:

- All CSFSTs are currently green or yellow.
- All ESF equipment is functioning.
- Containment conditions are normal.
- One SG Safety is stuck open on SG 'B'.
- SG 'B' level is below the narrow range indication.
- SGs 'A' and 'C' are being controlled at approximately 25% level using AFW.
- EPP-014, Faulted Steam Generator Isolation, has been performed for SG 'B'.
- The most recent RCS I-131 dose equivalent sample was 89 uCi/cc.
- The GFFD shows no increase in count rate.
- The RCS is subcooled by 52°F.
- Core damage assessments are **NOT** yet available.
- Emergency dose projections are **NOT** yet available.

INITIATING CUE(S):

You are to classify this event, entering the EAL Network at Entry Point "U" as directed by PATH-2.

START TIME: _____

*** DENOTES CRITICAL STEP**

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
1	NA	Locates procedure and required information.	Obtains EAL Flowpath and copy of PEP-110	Note that there is also a large laminated copy of this which may be used.	
		NOTES: **1. PROCEDURE STEPS ARE NOT LISTED SINCE ATTACHMENT 3 OF PEP-110 IS A FLOWCHART WHICH DOES NOT CONTAIN NUMBERING OF STEPS.** **2. NOT REQUIRED TO REFERENCE PEP-110.** **3. THE FOLLOWING JPM STEPS ARE DECISION POINTS REQUIRED TO BE MADE TO OBTAIN THE CORRECT EAL CLASSIFICATION AND ARE ADDRESSED FOR THIS REASON, ALTHOUGH NOT ALL ARE CONSIDERED CRITICAL STEPS.**		
2		Enters EAL Network at proper location	Enters EAL Network at Entry Point "U" and indicates RCS Breached on FPB Status Board	NOTE: Given in initial conditions due to being directed to this entry by PATH-2.	
3		Initiates monitoring of Critical Safety Functions	Directs Unit-SCO to initiate monitoring	NOTE: Crew should be already monitoring due to being in EOP Network.	
4		Any Rad Mon in EAL Table 1 in High Alarm	<**YES**> Determines MS Line 'B' Rad Monitor in high alarm		
5		Plant Vent Stack #1 WRGM Effluent Chnl > 3.6E5 uCi/sec	<**NO**> Determines rad monitor indicating normal based on Attachment A indications	NOTE: Given in initial conditions.	

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
6		Either Cnmt Hi Range Accident Mon > 17.5 R/hr	<NO> Determines rad monitor indicating normal based on Attachment A indications	NOTE: Given in initial conditions.	
7		Any EAL Table 2 Monitor > 1000 times normal	<NO> Determines rad monitor indicating normal based on Attachment A indications	NOTE: Given in initial conditions.	
8		Was Entry at Point "T"	<NO> Entry determined to be at Point "U"	NOTE: Given in initial conditions.	
9		GFFD increased > 1.0E5 cpm in 30 mins	<NO> Determines GFFD has not increased	NOTE: Given in initial conditions.	
10		RCS Activity (I-131 Dose Equivalent) > 300 uCi/cc	<NO> Determines RCS Activity < 300 uCi/cc	NOTE: Given in initial conditions.	
11		Core Cooling CSF red	<NO> Determines Core Cooling Status CSF NOT red	NOTE: All CSFSTs given as being green or yellow in initial conditions.	
12		Indicate Fuel Intact on FPB Status Board	Indicates Fuel Intact on FPB Status Board	NOTE: Later determination will cause this to be changed to Breached.	
*13		**EOP PATH-2 entered**	**<YES> Determines EOP PATH-2 entered**	NOTE: Given in initial conditions. Critical to Determine proper EAL classification. An incorrect decision here would result in determining Fuel intact instead of breached.	

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
***14**		**Any Main Steamline Rad mon > 20 mR/hr**	**<YES> Determines Main Steamline Rad monitor 3592 (SG 'B') above 20 mR/hr (21.8 mR/hr)**	NOTE: Given in initial conditions. Critical to Determine proper EAL classification. An incorrect decision here would result in determining Fuel intact instead of breached.	
15		Indicate Fuel and RCS Breached on FPB Status Board	Indicates Fuel and RCS Breached on FPB Status Board	NOTE: RCS already previously determined to be Breached and Fuel status now changed from Intact to Breached.	
***16**		**Was Entry at Point "V"**	**<NO> Entry determined to be at Point "U"**	NOTE: Given in initial conditions. Critical to Determine proper EAL classification. An incorrect decision here would result in determining Containment intact instead of breached.	
17		Is Cnmt Phase A or Vent Isolation Required?	**<YES>** Determines Phase A and Vent Isolation required due to Safety Injection signal	NOTE: Safety Injection signal required due to SGTR (PATH-2 entered).	
18		Pathway for fission products to escape Cnmt exists other than secondary systems (steam/feed)	**<NO>** Determines no containment breaches exist directly to atmosphere, other than via SG pathway, based on given conditions	NOTE: No indications given that containment is breached (intial conditions for containment are normal).	

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
***19**		**Primary-to-secondary leakage in any SG > 10 gpm**	**<YES> Determines primary-to-secondary leakage in SG 'B' exceeds 10 gpm based on being required to be in PATH-2**	NOTE: Indicated by elevated rad levels, requirement for reactor trip and safety injection. Critical to Determine proper EAL classification. An incorrect decision here would result in determining Containment intact instead of breached.	
20		Affected SG Safety Valves shut	<NO> Determines one Safety open on affected SG	NOTE: Given in initial conditions.	
21		Indicate Cnmt Breached on FPB Status Board	Indicates Cnmt Breached on FPB Status Board		
***22**		**3 FPBs Breached / Jeopardized**	**<YES> Determines all 3 FPBs are breached**	NOTE: Incorrect response to this decision would result in improper classification due to only 2 FPBs being considered breached. Critical to allow determination of proper EAL classification and PARs.	
***23**		**General Emergency EAL 2-1-4 exceeded**	**Determines General Emergency EAL 2-1-4 exceeded**	Critical to determine proper EAL classification and allow determination of PARs.	

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
		CUE: IF CANDIDATE <u>DOES</u> DETERMINE EAL CLASSIFICATION TO BE GENERAL EMERGENCY, PROVIDE CANDIDATE WITH ATTACHMENT 'A' (WIND SPEED AND DIRECTION) AND DIRECT CANDIDATE TO NOW DETERMINE PROTECTIVE ACTION RECOMMENDATIONS BASED ON THIS EVENT. **CONDITIONAL CUE: IF CANDIDATE <u>DOES NOT</u> DETERMINE EAL CLASSIFICATION TO BE GENERAL EMERGENCY, PROVIDE CANDIDATE WITH ATTACHMENT 'B' (CUE SHEET) AND DIRECT CANDIDATE TO DETERMINE PROTECTIVE ACTION RECOMMENDATIONS BASED ON THIS ATTACHED EVENT.**		NOTE: Although conditions are different in Attachment B, same process and responses are used in remainder of JPM.	
24		Locates proper procedure and required information for determining PAR	Locates Protective Action Recommendation Process in PEP-110, Attachment 3		
***25**		**General Emergency Declared?**	**<YES> Determines General Emergency declared based on just determined EAL**	NOTE: If using Attachment B conditions, this should be YES due to given conditions. Critical to allow determination of PARs.	

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
*26		**Substantial core damage is imminent or has occurred**	**<YES> Determines substantial core damage is imminent or has occurred.**	NOTE: For this type of event, should consider any Fuel Breach sufficient to warrant that substantial core damage has occurred (See Note 4 on PAR Flowchart). NOTE: If using Attachment B conditions, this should be YES due to Core Damage exceeding 1% melt. Critical to allow determination of PARs.	
*27		**A significant loss of reactor coolant is imminent or has occurred**	**<YES> Determines significant loss of reactor coolant is imminent or has occurred.**	NOTE: For this type of event, should consider any RCS Breach sufficient to warrant that significant loss of reactor coolant is imminent or has occurred (See Note 4 on PAR Flowchart). NOTE: If using Attachment B conditions, this should be YES due to Containment Hydrogen exceeding 1% or a LOCA. Critical to allow determination of PARs.	

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
***28**		**Containment failure (Primary or S/G) is imminent or has occurred**	**<YES> Determines containment failure (S/G) is imminent or has occurred.**	NOTE: Faulted/Ruptured S/G with a relief valve open is considered to be an indication that a Containment Breach has occurred (See Note 3 on PAR Flowchart). NOTE: If using Attachment B conditions, this should be YES due to Containment Hydrogen exceeding 4%. Critical to allow proper determination of PARs.	
***29**		**Determine wind direction**	**Determines wind direction from 220°**	NOTE: Wind direction is always given "from". Critical to determine proper evacuation and sheltering subzones.	

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
***30**		**Determine evacuation areas**	**Determines evacuation subzones to be A,B,C,D,E,F,K,L**	NOTE: Based on 5 mile radius and wind direction using 5 miles radius /10 mile downwind table. Critical to determine proper evacuation subzones.	
***31**		**Determine shelter areas**	**Determines shelter subzones to be G,H,I,J,M,N**	NOTE: Based on 10 miles downwind and wind direction using 5 miles radius /10 mile downwind table. Critical to determine proper sheltering subzones.	
		TASK COMPLETE			

STOP TIME: _____

CANDIDATE ATTACHMENT B

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

A **GENERAL EMERGENCY** has been declared following a large break loss of coolant accident.

The following conditions are noted:

- Core Exit Thermocouple temperatures are all between 1900°F and 2000°F.
- Radiochemistry analysis indicates that approximately 2.6% of the fuel volume has melted.
- RHR is injecting through the RCS cold legs.
- Containment Spray is operating with Containment Pressure at 18 psig.
- Containment hydrogen concentration is 5.5%.
- Wind Direction is 220°.
- Wind Speed is 18 mph.

INITIATING CUE(S):

Determine the Protective Action Recommendations for these conditions.

CANDIDATE ATTACHMENT A

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

WIND DIRECTION AND SPEED

- Wind Direction is 220°.
- Wind Speed is 18 mph.

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Following a reactor trip and safety injection, EOP-PATH-2 is being implemented.

The following plant conditions are noted:

- All CSFSTs are currently green or yellow.
- All ESF equipment is functioning.
- Containment conditions are normal.
- One SG Safety is stuck open on SG 'B'.
- SG 'B' level is below the narrow range indication.
- SGs 'A' and 'C' are being controlled at approximately 25% level using AFW.
- EPP-014, Faulted Steam Generator Isolation, has been performed for SG 'B'.
- The most recent RCS I-131 dose equivalent sample was 89 uCi/cc.
- The GFFD shows no increase in count rate.
- The RCS is subcooled by 52°F.
- Core damage assessments are **NOT** yet available.
- Emergency dose projections are **NOT** yet available.

RADIATION MONITORING PANEL INDICATIONS

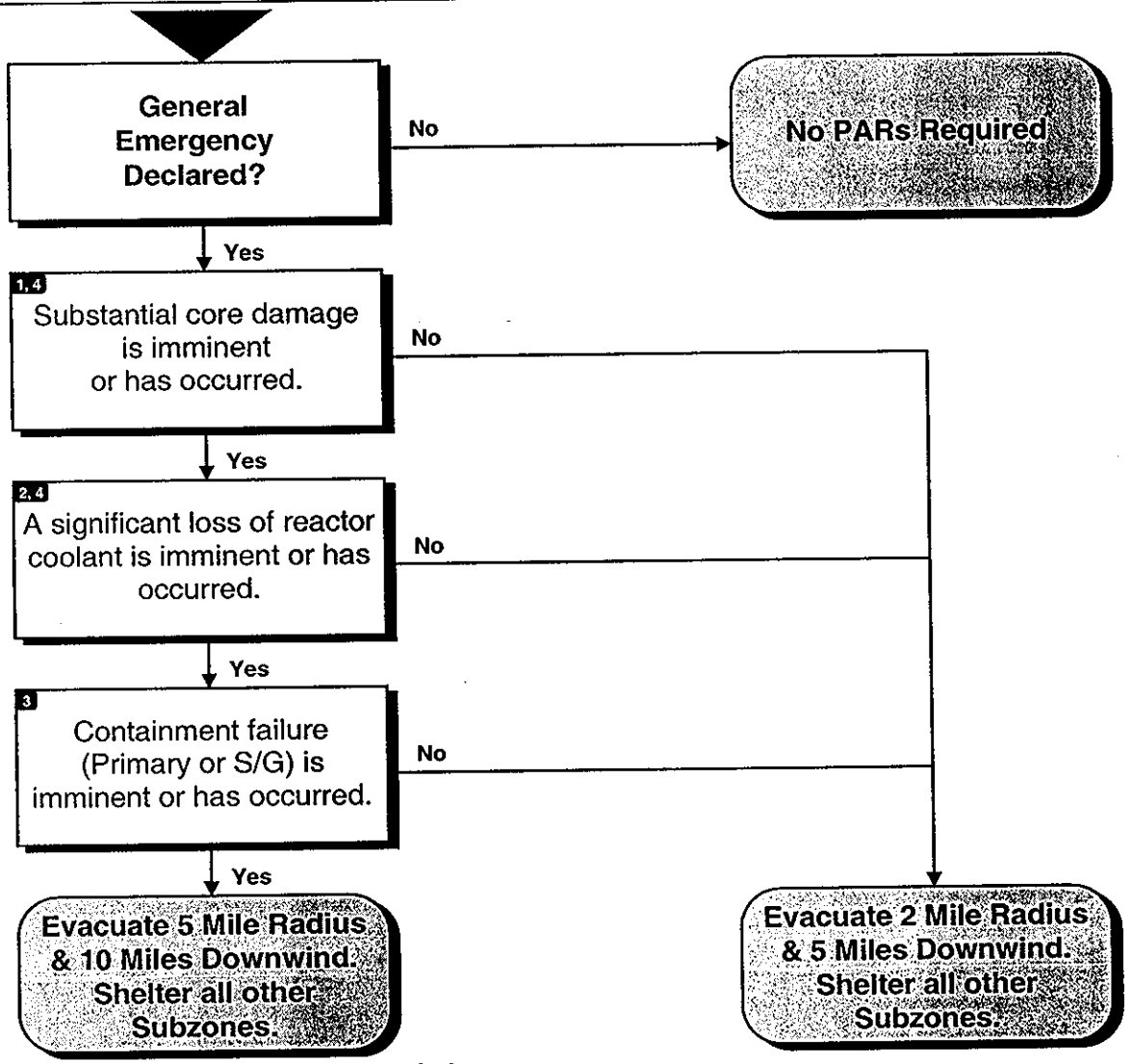
NOTE: Assume all radiation monitors **NOT** included in this list are indicating at or near their normal value.

MONITOR	DESCRIPTION	READING / ALARM STATUS
REM-1TV-3536	Turbine Building Stack 3A	3.2E-4 uCi/sec / Normal (Green)
REM-1TV-3534	Cond Vac Pump Effluent	Lowering / Was High (Red), now Alert (Yellow)
REM-1BD-3527	Steam Generator Blowdown	Lowering / Was High (Red), now Alert (Yellow)
RM-1MS-3591-SB	Main Steam Line 'A'	0.8 mR/hr / Normal (Green)
RM-1MS-3592-SB	Main Steam Line 'B'	21.8 mR/hr / High (Red)
RM-1MS-3593-SB	Main Steam Line 'C'	0.7 mR/hr / Normal (Green)

INITIATING CUE(S):

You are to classify this event, entering the EAL Network at Entry Point "U" as directed by PATH-2.

PROTECTIVE ACTION RECOMMENDATION PROCESS



5 Mile Radius, 10 Miles Downwind

Wind Direction (From °)	Evacuate Subzones	Shelter Subzones
348º - 010º	A,B,C,D,H,I,K,L	E,F,G,J,M,N
011º - 034º	A,B,C,D,H,I,J,K,L	E,F,G,M,N
035º - 079º	A,B,C,D,I,J,K,L,M	E,F,G,H,N
080º - 101º	A,B,C,D,J,K,L,M	E,F,G,H,I,N
102º - 124º	A,B,C,D,J,K,L,M,N	E,F,G,H,I
125º - 146º	A,B,C,D,K,L,M,N	E,F,G,H,I,J
147º - 191º	A,B,C,D,E,K,L,M,N	F,G,H,I,J
192º - 214º	A,B,C,D,E,K,L,N	F,G,H,I,J,M
215º - 236º	A,B,C,D,E,F,K,L	G,H,I,J,M,N
237º - 259º	A,B,C,D,E,F,G,K,L	H,I,J,M,N
260º - 326º	A,B,C,D,F,G,H,K,L	E,I,J,M,N
327º - 347º	A,B,C,D,G,H,I,K,L	E,F,J,M,N

2 Mile Radius 5 Miles Downwind

Wind Direction (From °)	Evacuate Subzones	Shelter Subzones
327º - 010º	A,D,K	B,C,E,F,G,H,I,J,L,M,N
011º - 056º	A,K	B,C,D,E,F,G,H,I,J,L,M,N
057º - 124º	A,K,L	B,C,D,E,F,G,H,I,J,M,N
125º - 191º	A,B,L	C,D,E,F,G,H,I,J,K,M,N
192º - 214º	A,B	C,D,E,F,G,H,I,J,K,L,M,N
215º - 259º	A,B,C	D,E,F,G,H,I,J,K,L,M,N
260º - 281º	A,B,C,D	E,F,G,H,I,J,K,L,M,N
282º - 304º	A,C,D	B,E,F,G,H,I,J,K,L,M,N
305º - 326º	A,C,D,K	B,E,F,G,H,I,J,L,M,N

PROTECTIVE ACTION RECOMMENDATION PROCESS

1. Indications that substantial core damage is imminent or has occurred include:
   a) Core damage > 1% Melt.
   b) Core Exit Thermocouple readings ≥ 2300º F.
   c) Core uncovered > 30 minutes.
2. Indications that a significant loss of reactor coolant is imminent or has occurred include:
   a) Containment radiation reading > 10,000 R/Hr without spray or > 4,000 R/Hr with spray.
   b) Containment hydrogen gas concentration > 1%.
   c) Rapid vessel depressurization.
   d) A large break loss of coolant accident.
3. Indications that containment failure (primary or S/G) is imminent or has occurred include:
   a) A release of radioactivity can not be maintained below the General Emergency EAL criteria.
   b) Primary containment pressure can not be maintained below design basis pressure which is 45 psig.
   c) Primary containment H_2 gas concentration can not be maintained below combustible limits which is 4% by volume.
   d) Faulted/Ruptured S/G with a relief valve open.
4. Accidents which result in a direct release pathway to the environment (for example, a faulted and ruptured S/G with water level below the tube bundles and a relief valve open would provide such a pathway) will most likely be thyroid dose limiting. For circumstances involving this type of accident sequence:
   a) Consider **any** Fuel Breach sufficient to warrant the determination that substantial core damage has occurred.
   b) Consider **any** RCS Breach sufficient to warrant the determination that a significant loss of reactor coolant has occurred.

Containment monitors can provide indication of both core damage and RCS breach. Monitor values used to determine a specific amount of core damage are dependent on plant conditions, power history and time after shutdown. Monitor readings used to quantify an amount of damage or coolant leakage should be complimented by other indications and engineering judgment.

<u>If a release is in progress:</u>

- Perform dose assessment as soon as possible to determine if PAGs are exceeded and if additional Subzones require evacuation.
- Add any Subzones requiring evacuation as determined by dose assessment to the plant based PARs.

<u>If no release is in progress:</u>

- Perform dose projection on possible conditions as time permits to determine if PAGs could be exceeded.
- Consider adding any Subzones requiring evacuation as determined by dose projection to the plant based PARs.

4.0 GENERAL

The Site Emergency Coordinator – CR and Emergency Communicator – CR Attachments (1 and 3) contain an "Initial Actions" section. The "Initial Actions" section is designed to guide the ERO member through the priority tasks following initial discovery of a condition or event requiring an emergency declaration. Specifically:

- Event declaration is required within 15 minutes of the time that plant parameters reach an Emergency Action Level.
- Alerting of on site personnel via Public Address announcement is required within 15 minutes of event declaration.
- Notification of event declaration to the State and County officials is required within 15 minutes of event declaration.
- Accountability must be completed within 30 minutes of; a Site Area Emergency or higher declaration; or decision to conduct accountability.
- Notification of event declaration to the NRC is required "as soon as possible" and no later than 60 minutes after an event declaration.
- Activation of the NRC ERDS data link is required within 60 minutes of an Alert or higher event declaration.

The Plant Operations Director attachment (2) also contains an "Initial Actions" section. This section is designed to guide the ERO member through the priority tasks associated with preparation for, and conduct of, the activation of the HNP Emergency Response Facilities.

The exact circumstances may dictate that portions of the Responsibility/Activity section be performed concurrent with the Initial Actions section of Attachments 1 - 3.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM RO-A.4

Activate the Emergency Response Organization - Dialogic System

CANDIDATE: _____

EXAMINER: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

TASK: Activate the Emergency Response Organization - Dialogic System

ALTERNATE PATH: None

FACILITY JPM NUMBER: NEW

KA: 2.4.43 IMPORTANCE: SRO NA RO 2.8

KA STATEMENT: Knowledge of emergency communications systems and techniques

TASK STANDARD: The Emergency Response Organization has been notified of a plant emergency using the Dialogic System

PREFERRED EVALUATION LOCATION: SIMULATOR ___ IN PLANT ___

PREFERRED EVALUATION METHOD: PERFORM ___ SIMULATE ___

REFERENCES: PEP-310, Notifications and Communications

VALIDATION TIME: 15 MINUTES TIME CRITICAL: No

CANDIDATE: _____

START TIME: _____ FINISH TIME: _____

PERFORMANCE TIME: _____ MINUTES

PERFORMANCE RATING: SAT _____ UNSAT _____

COMMENTS: _____

_____

_____

_____

EXAMINER: _____ _____
Signature Date

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

Telephone System

PEP-310, "Notifications and Communications," Attachment 6, "Emergency Response Organization Activation - Dialogic System"

READ TO OPERATOR

INSTRUCTIONS TO CANDIDATE:

I will explain the initial conditions and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed or asked by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task, return the handout sheet I provide you.

INITIAL CONDITIONS:

A Site Area Emergency has been declared. It is currently 1030 on Saturday morning.

A Public Address System announcement directing on-site members of the ERO to activate the Emergency Response Facilities has been made.

INITIATING CUE(S):

You have been directed to initiate activation of the remainder of the ERO using PEP-310, "Notifications and Communications," Attachment 6, "Emergency Response Organization Activation - Dialogic System."

START TIME: _____

*** DENOTES CRITICAL STEP**

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
1	NA	Obtain procedure	Obtains copy of PEP-310, Attachment 6		
		NOTE: PROCEDURE STEPS CORRESPOND TO STEPS IN ATTACHMENT 6. CUES LISTED SHOULD BE READ DIRECTLY AS WRITTEN AS AUTOMATIC RESPONSES TO OPERATOR ACTIONS.			
2	1	Scenario Determination – Select the appropriate scenario number from the provided options	Selects scenario number "23" based on a Site Area Emergency occurring during off normal hours (weekend)		
***3**	**2A**	**Connecting to the System – Dial 2452 on a plant extension or dial 362-2452 if using a Southern Bell line**	**Picks up a plant extension and dials "2452"**	Critical to connect to system to establish operation.	
		CUE: "HELLO"			
***4**	**2B**	**Immediately enter 4357 followed by the "#" key.**	**Enters "4357#" immediately upon hearing "hello" response**	Critical to establish proper connection to system.	
		CUE: "ENTER THE SCENARIO NUMBER YOU WISH TO WORK WITH."			
***5**	**2C**	**Enter the appropriate scenario number followed by the "#" key**	**Enters "23#"**	Critical to enter proper scenario number to ensure correct notification.	

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
		CUE: "YOU ENTERED 23. IS THAT CORRECT? PLEASE PRESS 9 FOR YES, 6 FOR NO."			
***6**	**2D**	**If correct, enter 9**	**Enters "9"**	Critical to validate proper plant conditions.	
		CUE: "THE SELECTED SCENARIO HAS BEEN COMPLETED. DO YOU WANT TO QUEUE IT? PLEASE PRESS 9 FOR YES, 6 FOR NO."			
***7**	**2E**	**Enter 9**	**Enters "9"**	Critical to direct system to begin making calls.	
		CUE: "YOU WILL QUEUE SCENARIO 23 AS AN EMERGENCY. ARE YOU SURE THIS IS WHAT YOU WANT TO DO? PLEASE PRESS 9 FOR YES, 6 FOR NO."			
***8**	**2F**	**Enter 9**	**Enters "9"**	Critical to direct system to begin making calls.	
		CUE: "PRESS 1 TO STOP SCENARIO MONITOR OR PRESS 2 TO SPEAK OF THE STATUS. THE SELECTED SCENARIO IS ACTIVE, GOODBYE."			
9	2G	Hang up and prepare for system activation verification (System will soon dial telephones in the MCR (362-7992 or 362-7997)).	Hangs up phone	Note: The previous message should be disregarded as this a system default message not associated with the ERO activation process at Harris.	
		CUE: PHONE LINE 362-7997 RINGS.			

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
***10**	**3A**	**System Activation Verification – When one of the Direct Bell lines rings, answer the telephone**	**Picks up line 362-7997**	Critical to answer phone to provide verification of system start.	
		CUE: "PLEASE ENTER A 2 FOLLOWED BY YOUR SOCIAL SECURITY NUMBER."			
***11**	**3B**	**Enter 2-123-45-6789**	**Enters "2123456789"**	Critical to enter number to verify actual event occurring requiring notification.	
		CUE: "YOU ENTERED 2-123-45-6789 IS THAT CORRECT? PLEASE PRESS 9 FOR YES, 6 FOR NO."			
***12**	**3C**	**If correct, enter 9**	**Enters "9"**	Critical to verify previous information to start system.	
		CUE: "THE EMERGENCY CLASSIFICATION IS SITE AREA EMERGENCY. ARE YOU FIT FOR DUTY?"			
***13**	**3D**	**Enter 9**	**Enters "9"**	Critical to respond with 'yes' response to start system.	
		CUE: "YOU WILL BE FILLING THE POSITION OF MAIN CONTROL ROOM. PLEASE ENTER YOUR ETA IN MINUTES."			
***14**	**3E**	**Enter 00**	**Enters "00"**	Note that any number entry will work for this entry. Critical to enter any number to initiate dialing system.	

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
		CUE: "THANK YOU. GOODBYE."			
15	3F	If the computer functioned as expected, notify the SEC-CR that Dialogic is calling in the ERO	Notifies SEC-CR that Dialogic is calling in the ERO		
16	4	Completion – Inform SEC-CR of the results of the system activation	Signs and dates completion of notification	Previous step actually informed SEC-CR verbally.	
		TASK COMPLETE			

STOP TIME: _____

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

A Site Area Emergency has been declared. It is currently 1030 on Saturday morning.

A Public Address System announcement directing on-site members of the ERO to activate the Emergency Response Facilities has been made.

INITIATING CUE(S):

You have been directed to initiate activation of the remainder of the ERO using PEP-310, "Notifications and Communications," Attachment 6, "Emergency Response Organization Activation - Dialogic System."

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM COM-B.1.a

Respond to a Failed High Pressurizer Pressure Channel - 50%

CANDIDATE: _____

EXAMINER: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

TASK: Respond to a Failed High Pressurizer Pressure Channel

ALTERNATE PATH: Pressurizer PORV fails to reseat following actuation

FACILITY JPM NUMBER: NEW

KA: 010.A2.03 IMPORTANCE: SRO 4.2 RO 4.1

KA STATEMENT: Ability to correct, control, or mitigate the consequences of the following PRZ PCS malfunction: PORV failures

TASK STANDARD: Master PRZ Controller is in MANUAL, controlling pressure, with PORV Block Valve 1RC-113 closed.

PREFERRED EVALUATION LOCATION: SIMULATOR ___ IN PLANT ___

PREFERRED EVALUATION METHOD: PERFORM ___ SIMULATE ___

REFERENCES: AOP-019, Malfunction of RCS Pressure Control

VALIDATION TIME: 10 MINUTES TIME CRITICAL: No

CANDIDATE: _____

START TIME: _____ FINISH TIME: _____

PERFORMANCE TIME: _____ MINUTES

PERFORMANCE RATING: SAT _____ UNSAT _____

COMMENTS: _____

_____

_____

EXAMINER: _____ _____
Signature Date

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

- Initialize to a 100% power IC.
- Enter malfunction to fail PRZ Pressure Channel 444 high and cause PORV to fail to reseat <IMF PRS03F 1 0> <PT:444 2500 0>.
- FREEZE the simulator.
- When candidate is ready, place simulator in RUN.

- AOP-019, "Malfunction of RCS Pressure Control"

READ TO OPERATOR

INSTRUCTIONS TO CANDIDATE:

I will explain the initial conditions and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed or asked by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task, return the handout sheet I provide you.

INITIAL CONDITIONS:

The plant is operating at 100% power.

The following alarms have been received:

- PRESSURIZER HIGH PRESS DEVIATION CONTROL (ALB-009-3-1)
- PRESSURIZER RELIEF DISCHARGE HIGH TEMP (ALB-009-8-2)
- PRESSURIZER HIGH-LOW PRESS (ALB-009-5-1)
- PRESSURIZER RELIEF TANK HIGH-LOW LEVEL PRESS OR TEMP (ALB-009-8-1)

INITIATING CUE(S):

You are to respond to the alarm condition(s), performing any required Immediate Actions from memory.

START TIME: _____

*** DENOTES CRITICAL STEP**

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
1	3.0.1	(IMMEDIATE ACTION) Check that a bubble exists in the PRZ	Determines bubble exists due to plant conditions		
*2	**3.0.2**	**(IMMEDIATE ACTION) Verify all PRZ PORVs and associated block valves properly positioned for current PRZ pressure and plant conditio7ns** Shut	• Determines PORV 444B failed to fully close as pressure lowers • Attempts to close PRZ PORV 444B by placing control switch in CLOSE • **Closes PRZ PORV 444B isolation valve, RC-113**	Critical to isolate the PORV to prevent RPS and/or ESF actuation on low pressure. Only critical to close PORV isolation valve.	
*3	**3.0.3**	**(IMMEDIATE ACTION) Check both PRZ spray valves properly positioned for current PRZ pressure and plant conditions.** 2 Close Shut 2030 Pressure	**Takes manual control of pressurizer spray valves by either:** • **Placing master controller PK-444A in manual, or** • **Placing spray valves in manual**	Critical to close the spray valves to prevent RPS and/or ESF actuation on low pressure. Only critical to cause spray valves to close, not perform both actions.	
4	NA	Obtain procedure AOP 19 cue	Obtain current copy of AOP-019, Sections 3.0 and 3.1		
5	3.0.4	Go to Section 3.1, Pressure Control Malfunctions While Operating With a Pressurizer Bubble.	Refers to Section 3.1		

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
6	3.1.1	Refer to PEP-110, Emergency Classification and Protective Action Recommendations, and enter the EAL Network at entry point X.	Informs SRO of need to refer to PEP-110 ✓		
		CUE: INFORM CANDIDATE THAT OTHER OPERATORS WILL PERFORM EAL NETWORK CHECKS.			
7	3.1.2	(CONTINUOUS ACTION) Monitor PRZ pressure by observing other reliable indication.	Monitors PRZ pressure by observing one or more of the following: • PI-455.1 • PI-456 • PI-457		
8	3.1.3	Check plant in Mode 1 or 2.	Determines plant in Mode 1 by conditions		
9	3.1.4	(CONTINUOUS ACTION) Check PRZ pressure controlled.	Determines PRZ pressure is controlled using PK-444A in MANUAL		
10	3.1.5	(CONTINUOUS ACTION) Check PRZ pressure 2335 psig or less.	Determines pressure is ≤2335 psig		

*11	**3.1.6**	**Check all of the following PRZ PORV block valves open or Refer to Technical Specification 3.4.4 and implement action where appropriate:**
		• **1RC-117 (for PCV-445A SA)** ✓
		• **1RC-115 (for PCV-445B)** ✓
		• **1RC-113 (for PCV-444B SB)** N/O
			• Determines PRZ PORV block valves open:
			  • 1RC-117
			  • 1RC-115
			• Determines PRZ PORV block valve 1RC-113 closed.
			• **Informs SRO of need to refer to TS 3.4.4.**
				Critical to ensure 1 hour TS requirement for closed block valve is met.	

		CUE: INFORM CANDIDATE THAT OTHER OPERATORS WILL REFER TO TECH SPECS.			

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
12	3.1.7	Check that a malfunction of one or more of the following has occurred: • PT-444 • PK-444A • PRZ heater(s) • PRZ spray valve(s) or controller(s)	Determines that PT-444 has failed high by comparing it to other channels.		
13	3.1.8	Verify PK-444A in MANUAL	Verifies PK-444A was placed in MANUAL as part of Immediate Actions.		
***14**	**3.1.9.a**	**Control PRZ pressure as follows:** • **Adjust PK-444A output as necessary, to attempt to restore and maintain PRZ pressure.**	**Adjusts PK-444A output by depressing the UP or DOWN buttons as required to control pressure**	Critical to maintain control of PRZ pressure.	
***15**	**3.1.9.b**	(CONTINUOUS ACTION) • Check both PRZ spray valve controllers in AUTO and both spray valves operating as desired, OR • **Verify both PRZ spray valve controllers in MANUAL and operate spray valves as necessary to control PRZ pressure**	• Checks both spray valve controllers operating properly if in auto • **Manually operates spray controllers as needed by depressing UP or DOWN buttons if in manual**	Only critical to control spray valve positions to control PRZ pressure if spray valves are in manual control. NOTE: If spray valve controllers were previously placed in manual they are to remain in manual.	
16	3.1.9.c	(CONTINUOUS ACTION) • Check all PRZ heaters operating as desired, OR • Manually operate control switches for heater groups as necessary to control PRZ pressure.	Checks heaters operating properly for pressure		

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
17	3.1.10	Check at least one of the following conditions present, or go to Step 18: • PRZ pressure is uncontrolled • Status of a normal spray valve or a PRZ heater bank is uncontrolled	• Determines pressure, spray valves, and heaters are controlled • Goes to Step 18		
		INFORM CANDIDATE THAT TASK IS COMPLETE WHEN DETERMINATION MADE THAT RCS PRESSURE, HEATERS, AND SPRAYS ARE UNDER CONTROL.		

STOP TIME: _____

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The plant is operating at 100% power.

The following alarms have been received:

- PRESSURIZER HIGH PRESS DEVIATION CONTROL (ALB-009-3-1)
- PRESSURIZER RELIEF DISCHARGE HIGH TEMP (ALB-009-8-2)
- PRESSURIZER HIGH-LOW PRESS (ALB-009-5-1)
- PRESSURIZER RELIEF TANK HIGH-LOW LEVEL PRESS OR TEMP (ALB-009-8-1)

INITIATING CUE(S):

You are to respond to the alarm condition(s), performing any required Immediate Actions from memory.

Master Copy

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM COM-B.1.b

LOSP While Paralleling EDG from MCB for Testing

CANDIDATE: _____

EXAMINER: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

TASK: LOSP While Paralleling EDG from MCB for Testing

ALTERNATE PATH: EDG output breaker 126 fails to open on LOSP and must be manually opened

FACILITY JPM NUMBER: NEW

KA: 056AA2.14 IMPORTANCE: SRO 4.6 RO 4.4

KA STATEMENT: Determine as related to a Loss of Offsite Power: Operational status of EDGs

TASK STANDARD: EDG B output breaker 126 has been manually opened

PREFERRED EVALUATION LOCATION: SIMULATOR ✔ IN PLANT ___

PREFERRED EVALUATION METHOD: PERFORM ✔ SIMULATE ___

REFERENCES: OP-155, Diesel Generator Emergency Power System

VALIDATION TIME: 15 MINUTES TIME CRITICAL: No

CANDIDATE: _____

START TIME: _____ FINISH TIME: _____

PERFORMANCE TIME: _____ MINUTES

PERFORMANCE RATING: SAT _____ UNSAT _____

COMMENTS: _____

_____

_____

_____

EXAMINER: _____ _____
Signature Date

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

- Initialize the simulator to a 100% power condition.
- Start EDG B.

SEE INSTRUCTIONS AFTER STEPS 17 AND 22 TO ENTER ADDITIONAL MALFUNCTIONS.

- **STEP 17 - Prevent EDG B breaker 126 from automatically opening on subsequent LOSP (allowing manual operation to open).**
- **STEP 22 - <EPS01> To cause a loss of offsite power to the plant.**

- Place simulator in FREEZE.
- When candidate is ready, place simulator in RUN.

OP-155, "Diesel Generator Emergency Power System"

READ TO OPERATOR

INSTRUCTIONS TO CANDIDATE:

I will explain the initial conditions and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed or asked by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task, return the handout sheet I provide you.

INITIAL CONDITIONS:

The plant is operating at 100% power.

Emergency Diesel Generator 1B-SB has been started and is ready to be paralleled to the grid.

I

INITIATING CUE(S):

You have been directed to parallel EDG 1B-SB to the grid in accordance with OP-155, "Diesel Generator Emergency Power System," Section 5.3.

START TIME: _____

*** DENOTES CRITICAL STEP**

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
1	NA	Obtains procedure	Obtains current copy of OP-155, Section 5.3		
2	5.3.1.1	Initial Conditions EDG 1B-SB is running	Determines EDG B is running based on voltage and frequency indications		
3	5.3.1.2	At ECP, READY TO LOAD light is on	Contacts operator at ECP to determine READY TO LOAD light is on		
CUE		**EDG B 'READY TO LOAD' LIGHT IS LIT.**			
4	5.3.1.3	At MCB, DIESEL GEN B-SB VOLTAGE REGULATOR control switch in AUTO	Verifies EDG B voltage regulator is in AUTO		
5	STEP	Procedural Steps Notify Load Dispatcher EDG 1B-SB will be loaded	Request Unit SCO notify Load Dispatcher		
CUE		**DISPATCHER HAS BEEN NOTIFIED.**			
6	5.3.2.2	Review Precautions 4.0.0.021, 4.0.0.022, 4.0.0.024 and 4.0.0.025 before paralleling	Reviews precautions		
*7	**5.3.2.3**	**Place DIESEL GEN B-SB SYNCHRONIZER control switch to SYNC**	**Turns EDG B sync scope on**	Critical to permit closure of EDG breaker 126	

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
8	5.3.2.4.a	Position DIESEL GEN B-SB AUTO VOLTAGE ADJUST control switch to RAISE or LOWER as necessary to perform the following: • Lower voltage to 6.6 KV	Adjust EDG B Auto Voltage Adjust until EDG voltage indicates 6.6 KV		
9	5.3.2.4.b	• Raise voltage to 7.2 KV	Adjust EDG B Auto Voltage Adjust until EDG voltage indicates 7.2 KV		
10	5.3.2.4.c	Position DIESEL GEN B-SB AUTO VOLTAGE ADJUST control switch to RAISE or LOWER as necessary to perform the following: • Adjust EDG voltage to match the associated Emergency 6.9KV Bus voltage as indicated by zero differential voltage on EI-6953B SB , B SYNC Δ VOLTS	Adjust EDG B Auto Voltage Adjust until EDG voltage matches 6.9KV Bus 1B-SB voltage (0 Δ VOLTS)		
11	5.3.2.5.a	Position DIESEL GEN B-SB GOVERNOR CONTROL switch to RAISE or LOWER as necessary to perform the following: • Lower frequency to 59 HZ	Adjust EDG B Governor Control until EDG B frequency is indicating 59 HZ		
12	5.3.2.5.b	• Raise frequency to 61 HZ	Adjust EDG B Governor Control until EDG B frequency is indicating 61 HZ		
13	5.3.2.5.c	Position DIESEL GEN B-SB GOVERNOR CONTROL switch to RAISE or LOWER as necessary to perform the following: • Adjust EDG speed until the synchroscope is rotating slowly in the FAST direction (CLOCKWISE)	Adjust EDG B Governor Control until EDG B sync scope is indicating slow CW movement		

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
14	5.3.2.6	Check synchronizing lights are cycling (OUT when the synchroscope is at the 12 o'clock position) in agreement with the synchroscope rotation	Verify sync lights cycling properly in agreement with sync scope		
15	5.3.2.7	As necessary, position DIESEL GEN B-SB AUTO VOLTAGE ADJUST control switch to adjust EDG voltage to zero differential voltage on EI-6953B SB , B SYNC Δ VOLTS	Readjust EDG B Auto Voltage Adjust until EDG voltage matches 6.9KV Bus 1B-SB voltage (0 Δ VOLTS)		
***16**	**5.3.2.8**	**When the synchroscope reaches the 12 o'clock position and the synchronizing lights are TOTALLY DARK, place the DIESEL GEN B-SB BREAKER 126 SB control switch to CLOSE**	**Place EDG B breaker 126 to close position when sync scope indicates 12 o'clock position and sync lights are totally dark**	Critical to close EDG breaker 126 to permit EDG to pickup load	
17	5.3.2.9	Check DIESEL GEN B-SB BREAKER 126 SB is closed	Verify EDG B breaker is closed		
		SIMULATOR INSTRUCTOR INSTRUCTIONS: INSERT MALFUNCTION TO PREVENT EDG B BREAKER 126 FROM AUTOMATICALLY OPENING ON SUBSEQUENT LOSP (ALLOWING MANUAL OPERATION TO OPEN).			
***18**	**5.3.2.10**	**Position DIESEL GEN B-SB GOVERNOR CONTROL switch to increase generator load to 2.2 to 2.4 MW on EI-6957B1 SB, B POWER**	**Adjust EDG B Governor Control until EDG B load indicates 2.2 to 2.4 MW**	Critical to pickup load to prevent reverse power trip of EDG breaker 126	
19	5.3.2.11	Position DIESEL GEN 1B-SB AUTO VOLTAGE ADJUST control switch to obtain 1.0 MVARs on EI-6958B SB, B REACTIVE	Adjust EDG B Auto Voltage Adjust until EDG reactive load indicates 1.0 MVARs		
20	5.3.2.12	Place DIESEL GEN B-SB SYNCHRONIZER control switch to OFF	Place EDG B sync scope off		

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
21	5.3.2.13	Check DIESEL GEN B-SB BREAKER 126 SB amber light is lit	Verify amber light lit on EDG B breaker 126		
22	5.3.2.14.a	Increase load per the following loading schedule to attain desired loading AND as load is increased, adjust voltage to maintain reactive load within the limits of Attachment 9: • Maintain 2.2 to 2.4 MW and MVAR within Attachment 9 until Diesel Exhaust temperatures stabilize	Maintain 2.2 to 2.4 MW load on EDG B		
		SIMULATOR INSTRUCTOR INSTRUCTIONS: INSERT MALFUNCTION <EPS01> TO CAUSE A LOSS OF OFFSITE POWER TO THE PLANT.			
23	NA	Determine LOSP has occurred and check for proper response of EDG B output breaker 126	• Determine EDG B breaker 126 has failed to open • Notifies Unit SCO		
***24**	**4.0.0.024**	**Open EDG B breaker 126**	**Place EDG B breaker 126 to open**	Critical to separate EDG from grid to prevent EDG damage due to overload	
		TASK COMPLETE			

STOP TIME: _____

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The plant is operating at 100% power.

Emergency Diesel Generator 1B-SB has been started and is ready to be paralleled to the grid.

INITIATING CUE(S):

You have been directed to parallel EDG 1B-SB to the grid in accordance with OP-155, "Diesel Generator Emergency Power System," Section 5.3.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM COM-B.1.c

Secure One Train of CCW to the RHR HXs

When completed

CANDIDATE: _____

EXAMINER: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

TASK: Secure One Train of CCW to the RHR HXs

ALTERNATE PATH: None

FACILITY JPM NUMBER: RO-B.1.e (NRC Exam – Dec 2000)

KA: 008A2.01 IMPORTANCE: SRO 3.3 RO 3.1

KA STATEMENT: Ability to operate and / or monitor in the control room: CCW indications and controls.

TASK STANDARD: Train 'A' CCW is supplying the RHR HX and the non-essential loop.

PREFERRED EVALUATION LOCATION: SIMULATOR ___ IN PLANT ___

PREFERRED EVALUATION METHOD: PERFORM ___ SIMULATE ___

REFERENCES: OP-145, Component Cooling Water

VALIDATION TIME: 10 MINUTES TIME CRITICAL: No

CANDIDATE: _____

START TIME: _____ FINISH TIME: _____

PERFORMANCE TIME: _____ MINUTES

PERFORMANCE RATING: SAT _____ UNSAT _____

COMMENTS: _____

_____

_____

_____

_____

EXAMINER: _____ _____
Signature Date

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

- Initialize to an IC where RHR Train 'A' is in operation (IC-2).
- Ensure both 'A' and 'B' CCW pumps are operating.
- Ensure the following valves are open: 1CC-147, 1CC-167, 1CC-113, and 1CC-127.
- Ensure the following valves are closed: 1CC-99 and 1CC-128.
- Adjust CCW flows <MRF CCW030 25>
- FREEZE the simulator
- When candidate is ready, place simulator in RUN

OP-145, "Component Cooling Water," Section 8.14

READ TO OPERATOR

INSTRUCTIONS TO CANDIDATE:

I will explain the initial conditions and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed or asked by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task, return the handout sheet I provide you.

INITIAL CONDITIONS:

The plant is in Mode 4. Train 'B' RHR has been removed from service.

Both trains of CCW are in operation, with Train 'A' CCW supplying only the essential loop and Train 'B' CCW supplying the essential and non-essential loops.

INITIATING CUE(S):

You are to secure CCW Pump 'B' in accordance with OP-145, Section 8.14.

START TIME: _____

*** DENOTES CRITICAL STEP**

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
1	NA	Obtain procedure	Obtain current copy of OP-145, Section 8.14	Give CP ← Sect 8.14 after they show they	
*2	**8.14.2.1.1**	**If the RHR train to be taken out of service is being supplied by the same CCW pump as the Non-Essential loop then perform the following steps:** • **For the RHR HX to be taken out of service, Shut 1CC-167, CCW FROM RHR HEAT EXCHANGER B-SB**	• **Closes 1CC-167, CCW FROM RHR HEAT EXCHANGER B-SB** • Verifies the valve closed by position indicating lights	Critical to establish flow limitations within the capability of a single pump Verification is not critical	Can get it
3	8.14.2.1.2	• Verify total system flow is less than 12,650 gpm	Verifies total system flow is less than 12,000 gpm by adding the indication on FI-652.1 and FI-653.1		
*4	**8.14.2.1.3**	**Verify open, the following valves:** • **1CC-99, CCW HEAT EXCHANGER A TO NONESSENTIAL SUP** • 1CC-113, CCW HEAT EXCHANGER B TO NONESSENTIAL SUP • 1CC-127, CCW NONESSENTIAL RETURN TO HEADER B • **1CC-128, CCW NONESSENTIAL RETURN TO HEADER A**	• **Places 1CC-99 control switch in OPEN** • **Places 1CC-128 control switch in OPEN** • Verifies all valves now open by observing position indicating lights	Critical to allow supplying the non-essential loop from the running ccw pump Only critical to open 1CC-99 and 1CC-128	

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
*5	**8.14.2.1.4**	**At the MCB, stop the desired CCW Pump A-SA or B-SB**	• **Places CCW Pump 1B-SB control switch in STOP** • Verifies the pump stops by observing breaker indicating lights	Critical to establish a single running CCW pump Verification is not critical	
6	8.14.2.1.5	Verify Train B flow stops via FI-653.1 and that pressure remains greater than 62 psig as per PI-650	Verifies flow stops by observing FI-653.1 decreases to zero and pressure remains >62 psig on PI-650		
7	8.14.2.2	If the RHR train to be taken out of service is the only flowpath for the CCW pump, perform the following steps:	Determines RHR train is not the only flowpath for the CCW pump and does not perform Step 8.14.2.2		
		TASK COMPLETE			

STOP TIME: _____

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The plant is in Mode 4. Train 'B' RHR has been removed from service.

Both trains of CCW are in operation, with Train 'A' CCW supplying only the essential loop and Train 'B' CCW supplying the essential and non-essential loops.

INITIATING CUE(S):

You are to secure CCW Pump 'B' in accordance with OP-145, Section 8.14.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM COM-B.1.d

Manually Align Containment Spray

CANDIDATE: _____

EXAMINER: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

TASK: Manually Align Containment Spray

ALTERNATE PATH: Starts Containment Spray and aligns valves

FACILITY JPM NUMBER: CR-106

KA: 026A4.01 IMPORTANCE: SRO 4.3 RO 4.5

KA STATEMENT: Manually operate in the control room: CSS controls.

TASK STANDARD: Containment Spray has been actuated and all RCPs have been stopped.

PREFERRED EVALUATION LOCATION: SIMULATOR ___ IN PLANT ___

PREFERRED EVALUATION METHOD: PERFORM ___ SIMULATE ___

REFERENCES: EOP-PATH-1

VALIDATION TIME: 10 MINUTES TIME CRITICAL: No

CANDIDATE: _____

START TIME: _____ FINISH TIME: _____

PERFORMANCE TIME: _____ MINUTES

PERFORMANCE RATING: SAT _____ UNSAT _____

COMMENTS: _____

_____

_____

_____

_____

EXAMINER: _____ _____
Signature Date

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

- Initialize to a 100 percent condition.
- Defeat Hi-3 Containment Pressure Signal such that Containment Spray and Phase B Isolation are not actuated. <ZRPK:519A, ZRPK:519B>
- Defeat the manual Containment Spray actuation switches on the MCB. <ICOR ZRPK:505A, ZRPK:505B, ZRPK:506A, ZRPK:506B>
- Insert an RCS break of sufficient size to sustain containment pressure greater than 10# and follow PATH-1 to Step 10-- CNMT PRESSURE REMAINED BELOW 1O PSIG. <IMF RCS18A 80>
- Maintain RCPs operating.
- Place simulator in FREEZE
- When candidate is ready, place simulator in RUN

EOP-PATH-1 and EOP-PATH-1 Guide

READ TO OPERATOR

INSTRUCTIONS TO CANDIDATE:

I will explain the initial conditions and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed or asked by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task, return the handout sheet I provide you.

INITIAL CONDITIONS:

An RCS break has occurred inside containment and a reactor trip and SI have been initiated.

PATH-1 is being implemented.

INITIATING CUE(S):

Step 10, "CNMT PRESSURE REMAINED BELOW 10 PSIG," of PATH-1 has just been reached.

Perform Step 10 of PATH-1.

START TIME: _____

*** DENOTES CRITICAL STEP**

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
1	10	CNMT pressure has remained less than 10 psig	Checks pressure on MCB indicaters, ERFIS, or Recorder Panel and determines pressure has exceeded 10 psig		
2	10.a (RNO)	Verify Containment Spray actuated	Determines Containment Spray Pumps A-SA and B-SB NOT running and/or checks ALB-001/4-1 Containment Spray Actuation NOT lit		
*3	**10.a (RNO)**	**Manually actuate Containment Spray**	**Places Pumps in START:** • **Containment Spray Pump A-SA** • **Containment Spray Pump B-SB** **Places valves in OPEN:** • **1CT-50, Cnmt Spray Pump A-SA Discharge** • **1CT-88, Cnmt Spray Pump B-SB Discharge** • **1CT-12, Cnmt Spray Chemical Addition** • **1CT-11, Cnmt Spray Chemical Addition**	Critical to start pumps and position valves to provide spray flow	
		NOTE: MAY ATTEMPT TO MANUALLY ACTUATE SPRAY USING HANDSWITCHES. THIS WILL NOT BE SUCCESSFUL AND IS NOT REQUIRED TO BE PERFORMED.			

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
4	10.a (RNO)	Verify Phase B Isolation Valves shut	Places valves in CLOSE: • 1CC-207, CCW to RCPs • 1CC-208, CCW to RCPs • 1CC-249, RCP Thermal Barriers Return • 1CC-251, RCP Thermal Barriers Return • 1CC-297, RCP Bearing Oil Coolers Return • 1CC-299, RCP Bearing Oil Coolers Return	NOTE: This is NOT considered a critical step, and may NOT be performed since the procedure does NOT direct performance. This step will be performed in Step 12 of PATH-1 when Attachment 6 is performed. Candidates may perform this step at this time, but it is NOT required to be performed.	
***5**	**10.b (RNO)**	**Stop all RCPs**	**Places all RCPs to STOP**	Critical to stop all RCPs due to isolating CCW cooling flow to RCPs	
		TASK COMPLETE			

STOP TIME: _____

D.A. / NoCom

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM COM-B.1.e

Transfer to Hot Leg Recirculation

CANDIDATE: _____

EXAMINER: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

TASK: Transfer to Hot Leg Recirculation

ALTERNATE PATH: Train B high head flow is re-established through cold leg injection due to failure of hot leg injection valve to open

FACILITY JPM NUMBER: CR-066

KA: 006A4.05 IMPORTANCE: SRO 3.8 RO 3.9

KA STATEMENT: Operate in the control room: Transfer of ECCS flowpaths prior to recirculation.

TASK STANDARD: Hot leg recirculation has been established.

PREFERRED EVALUATION LOCATION: SIMULATOR ___ IN PLANT ___

PREFERRED EVALUATION METHOD: PERFORM ___ SIMULATE ___

REFERENCES: EOP-EPP-011, Transfer Between Cold Leg and Hot Leg Recirculation

VALIDATION TIME: 15 MINUTES TIME CRITICAL: No

CANDIDATE: _____

START TIME: _____ FINISH TIME: _____

PERFORMANCE TIME: _____ MINUTES

PERFORMANCE RATING: SAT _____ UNSAT _____

COMMENTS: _____

_____

_____

_____

EXAMINER: _____ _____
Signature Date

TOOLS / EQUIPMENT / PROCEDURES NEEDED:
Establish the following conditions:

- Post-LOCA, the plant is aligned for cold leg recirculation per EPP-010, with SI-341 open and SI-340 closed.
- A and B CSIPs are operating.
- A and B RHR pumps are operating.
- RCS pressure is approximately 0 PSIG.
- Insert a failure for 1SI-86 to normal so it will not open <IOR XA1I063 NORMAL>
- Place simulator in FREEZE.
- When candidate is ready, place simulator in RUN.

EOP-EPP-011, "Transfer Between Cold Leg and Hot Leg Recirculation"

READ TO OPERATOR

INSTRUCTIONS TO CANDIDATE:

I will explain the initial conditions and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed or asked by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task, return the handout sheet I provide you.

INITIAL CONDITIONS:

The plant has experienced a LB LOCA.

It has been 6.5 hours since the LOCA occurred and the plant is aligned for cold leg recirculation per EOP-EPP-010, "Transfer to Cold Leg Recirculation."

INITIATING CUE(S):

You have been directed to perform a transfer to hot leg recirculation per EOP-EPP-011, "Transfer Between Cold Leg and Hot Leg Recirculation."

START TIME: _____

*** DENOTES CRITICAL STEP**

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
1	1	Check charging line isolated	Determines charging line is isolated by checking charging flow FI-122.1 indicating 0 or by checking valves 1CS-235 and 1CS-238 closed		
2	2	Check SI aligned for Cold Leg Recirculation	Determines aligned for Cold Leg Recirculation by checking valves or by checking flow on FI - 943 and FI-940		
***3**	**3.a**	**Align RHR Pumps For Hot Leg Recirculation:** • **Shut low head SI to cold leg valves 1SI-340 and 1SI-341**	**Places control power to ON and then places valve to CLOSED:** • **1SI-341, Low Head SI Train B to Cold Leg Cont Pwr & Vlv Pos <u>AND</u> Low Head SI Train B to Cold Leg** Verifies closed: • 1SI-340, Low Head SI Train A to Cold Leg	Critical to isolate CL recirc to allow alignment for HL recirc Only critical to shut valve SI-341 since SI-340 is already closed.	
***4**	**3.b**	• **Open low head SI to hot leg valve 1SI-359**	**Places control power to ON and then places valve to OPEN:** • **1SI-359, Low Head SI Trains A & B to Cold Leg Cont Pwr & Vlv Pos <u>AND</u> Low Head SI Trains A & B to Cold Leg**	Critical to provide flowpath for HL recirc	

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
5	4	Check CSIP injection flow path: • Alternate high head SI to cold leg valve - OPEN: 1SI-52 • Any BIT outlet valve - OPEN: 1SI-3 or 1SI-4	Determines valves OPEN by checking position: • 1SI-52, Alt High Head SI to Cold Leg • 1SI-3, Boron Inj Tank Outlet • 1SI-4, Boron Inj Tank Outlet		
***6**	**5.a**	**Align both CSIPs for hot leg recirculation** • **Stop Train A CSIP**	**Places CSIP A in STOP**	Critical to prevent damage to pump due to no flowpath	
***7**	**5.b**	• **Shut alternate high head SI to cold leg valve: 1SI-52**	**Places control power to ON and then places valve to CLOSE:** • **1SI-52, Alt High Head SI to Cold Leg Cont Pwr & Vlv Pos AND Alt High Head SI to Cold Leg**	Critical to isolate CL recirc to allow alignment for HL recirc	
***8**	**5.c**	• **Open alternate high head SI to hot leg valve: 1SI-107**	**Places control power to ON and then places valve to OPEN:** • **1SI-107, Alt High Head SI to Hot Leg Cont Pwr & Vlv Pos AND Alt High Head SI to Hot Leg**	Critical to provide flowpath for HL recirc	
***9**	**5.d**	• **Start Train A CSIP**	**Places CSIP A in START** and verifies current on EI-221 and flow on FI-940	Verification of current and flow is NOT critical Critical to provide flow	
***10**	**5.e**	• **Stop Train B CSIP**	**Places CSIP B in STOP**	Critical to prevent damage to pump due to no flowpath	
11	5.f	• Shut BIT outlet valves: 1SI-3 and 1SI-4	Places valves to CLOSE: • 1SI-3, Boron Inj Tank Outlet • 1SI-4, Boron Inj Tank Outlet		

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
12	5.g	• Open high head SI to hot leg valve: 1SI-86	Places control power to ON and then places valve to OPEN: • 1SI-86, High Head SI to Hot Leg Cont Pwr & Vlv Pos AND High Head SI to Hot Leg	1SI-86 FAILS TO OPEN	
***13**	**5.g.1 (RNO)**	• **Open BIT outlet valves: 1SI-3 and 1SI-4**	**Places valves to OPEN:** • **1SI-3, Boron Inj Tank Outlet** • **1SI-4, Boron Inj Tank Outlet**	Critical to provide flowpath for CL recirc since HL flowpath cannot be established	
14	5.g.2 (RNO)	• Consult the Plant Operations Staff to evaluate use of Attachment 1 to open High Head SI to Hot Leg Valve while continuing with this procedure	Consults Plant Operations Staff		
		CUE: THE UNIT SCO WILL CONTACT THE TSC, AND DIRECTS YOU TO CONTINUE WITH THE PROCEDURE UNTIL A RECOMMENDATION IS RECEIVED.			
***15**	**5.h**	• **Start Train B CSIP**	**Places CSIP B in START** and verifies current on EI-222 and flow on FI-943	Verification of current and flow is NOT critical Critical to provide flow	
		TASK COMPLETE			

STOP TIME: _____

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The plant has experienced a LB LOCA.

It has been 6.5 hours since the LOCA occurred and the plant is aligned for cold leg recirculation per EOP-EPP-010, "Transfer to Cold Leg Recirculation."

INITIATING CUE(S):

You have been directed to perform a transfer to hot leg recirculation per EOP-EPP-011, "Transfer Between Cold Leg and Hot Leg Recirculation."

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM COM-B.1.f

Start an RCP Following Maintenance

CANDIDATE: _____

EXAMINER: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

TASK: Start an RCP Following Maintenance

ALTERNATE PATH: None

FACILITY JPM NUMBER: CR-005

KA: 003A4.06 IMPORTANCE: SRO 2.9 RO 2.9

KA STATEMENT: Operate in the Control Room: Reactor Coolant Pump parameters

TASK STANDARD: RCP A has been started

PREFERRED EVALUATION LOCATION: SIMULATOR ___ IN PLANT ___

PREFERRED EVALUATION METHOD: PERFORM ___ SIMULATE ___

REFERENCES: OP-100, Reactor Coolant System

VALIDATION TIME: 10 MINUTES TIME CRITICAL: No

CANDIDATE: _____

START TIME: _____ FINISH TIME: _____

PERFORMANCE TIME: _____ MINUTES

PERFORMANCE RATING: SAT _____ UNSAT _____

COMMENTS: _____

_____

_____

_____

_____

EXAMINER: _____ _____
Signature Date

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

- Initialize the simulator to a Mode 3 hot standby condition, 557°F and 2235 psig <IC-7>
- Secure RCP A
- Allow simulator to run until plant conditions are stable, then FREEZE
- When candidate is ready, place simulator in RUN

OP-100, "Reactor Coolant System," Section 5.1

READ TO OPERATOR

INSTRUCTIONS TO CANDIDATE:

I will explain the initial conditions and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed or asked by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task, return the handout sheet I provide you.

INITIAL CONDITIONS:

The plant is in Mode 3, 557°F and 2235 psig.

RCP A was out of service for maintenance. Maintenance has been completed and the RCP is ready for operation

INITIATING CUE(S):

You have been directed to start RCP A in accordance with OP-100, "Reactor Coolant System," Section 5.1. All initial conditions have been completed.

START TIME: 10:38 pm

*** DENOTES CRITICAL STEP**

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
1	NA	Obtain procedure	Obtains copy of OP-100		
2	5.1.2.1.a	Verify the following before pump start: • If jogging RCPs per GP-001, RCS pressure > 325 psig	Verifies RCS pressure > 325 psig (May not check - not applicable to start) ✓	Didn't	S
3	5.1.2.1.b	• No. 1 seal Δp > 200 psid	Verifies RCP A seal Δp > 200 psid. (PI-156A1) ✓		S
4	5.1.2.1.c	• Seal injection flow is between 8 and 13 gpm at a temperature between 60°F and 130°F	Verifies RCP A seal injection flow indication (FI-130A) and VCT outlet temp indication (TI-116.1) in limits	2.3 used graph ✓	S
5	5.1.2.1.d	• No. 1 seal leakoff is in the normal operating range of Attachment 3.	Verifies RCP A seal leakoff meets Attachment 3 requirements (FR-154A)	✓	S
***6**	**5.1.2.2**	**Start the RCP oil lift pump**	**Places RCP A oil lift pump switch to start**	Critical to meet interlock for starting ~~power~~	S
7	5.1.2.3	Verify the amber permissive light on the lift pump control switch is lit indicating proper lift oil pressure has been achieved	Verifies amber permissive light on the RCP A oil lift pump switch is lit	✓	S
8	5.1.2.4	Allow the RCP oil lift pump to run for a minimum of 2 minutes before starting an RCP	Verifies a minimum of 2 minutes has passed since starting the pump	✓	S
***9**	**5.1.2.5**	**Start the RCP**	**Places RCP A switch to start**	Critical to close breaker for RCP	✓

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
10	5.1.2.6	Verify the following normal operating parameters: • Running amps: Hot 460 to 540 amps, Cold 715 amps • RCS flow: ≥ 98% • No. 1 seal Δp: > 200 psid • No. 1 seal leakoff: in the normal operating range of Attachment 3 • Motor winding temperature: < 300°F	Verifies parameters are in the normal band • Running amps ✓ • RCS flow ✓ • No. 1 seal Δp ✓ • No. 1 seal leakoff ✓ • Motor winding ✓ temperature	✓	S
11	5.1.2.7	After at least 1 minute, stop the RCP oil lift pump	Verifies one minute has passed and places RCP A oil lift pump switch to off	✓	S
		TASK COMPLETE			

STOP TIME: _____

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The plant is in Mode 3, 557°F and 2235 psig.

RCP A was out of service for maintenance. Maintenance has been completed and the RCP is ready for operation

INITIATING CUE(S):

You have been directed to start RCP A in accordance with OP-100, "Reactor Coolant System," Section 5.1. All initial conditions have been completed.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM SRO-B.1.g

Power Range NI Gain Adjustment

CANDIDATE: _____

EXAMINER: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

TASK: Power Range NI Gain Adjustment

ALTERNATE PATH: None

FACILITY JPM NUMBER: NEW

KA: 015A4.02 IMPORTANCE: SRO 3.9 RO NA

KA STATEMENT: Operate in the Control Room: NIS Indicators

TASK STANDARD: Gain has been adjusted within limits for PR Channel N-44

PREFERRED EVALUATION LOCATION: SIMULATOR ___ IN PLANT ___

PREFERRED EVALUATION METHOD: PERFORM ___ SIMULATE ___

REFERENCES: OP-105, Excore Nuclear Instrumentation

VALIDATION TIME: 20 MINUTES TIME CRITICAL: No

CANDIDATE: _____

START TIME: _____ FINISH TIME: _____

PERFORMANCE TIME: _____ MINUTES

PERFORMANCE RATING: SAT _____ UNSAT _____

COMMENTS: _____

_____

_____

_____

_____

EXAMINER: _____ _____
Signature Date

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

- Initialize to a 100% equilibrium condition
- Place Rod Control in MAN
- Place Meter Rate on front of PR channel NI-44 to Fast
- Unlock gain pot on the front of PR channel NI-44
- Slowly adjust the gain to 1.56 and verify that it indicates approximately 3% - 3.5% below the other 3 PR channels
- Ensure any alarms caused by this adjustment are reset
- Lock gain pot
- Place Meter Rate on front of PR channel NI-44 to Slow
- Place Rod Control in AUTO
- FREEZE the simulator
- When candidate is ready, place simulator in RUN

OP-105, "Excore Nuclear Instrumentation," Section 8.3 and Attachment 2
(Provide marked up copy of Attachment 2 to candidate)

READ TO OPERATOR

INSTRUCTIONS TO CANDIDATE:

I will explain the initial conditions and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed or asked by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task, return the handout sheet I provide you.

INITIAL CONDITIONS:

The plant is at 100% equilibrium conditions.

Following maintenance on PR Channel N-44, all required testing has been completed and the channel is ready to be returned to service. A calorimetric has just been performed per OST-1004, "Power Range Heat Balance, Computer Calculation, Daily Interval, Mode 1 (Above 15% Power)."

The calculated power is 99.8%. Indicated power on PR channel N-44 at the time of the calorimetric was at its current value. Rod Control is in Automatic.

INITIATING CUE(S):

You are to perform the Power Range NI Gain Adjust for PR channel N-44 in accordance with OP-105, "Excore Nuclear Instrumentation," Section 8.3 and Attachment 2.

START TIME: 1945

58
45
1-3

*** DENOTES CRITICAL STEP**

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
1	NA	Obtains procedure	Obtains current copy of OP-105, Attachment 2		
		NOTE: • **PROVIDE CANDIDATE WITH ATTACHED MARKED UP COPY OF ATTACHMENT 2 OF OP-105.** • **ALL IDENTIFIED PROCEDURE STEPS ARE FROM ATTACHMENT 2. ACTIONS ARE ONLY TO BE PERFORMED ON PR CH N-44.**			
2	1	Record the as found setting of the GAIN potentiometer on the front of Power Range Drawer B	Records setting as 1.56 (1.54 to 1.58) 1.56	1.54	
3	2	Determine the difference, including sign, between the calculated power and the indicated reactor power at the time data was obtained as follows: CALC PWR - N44 IND PWR = N44 DIFFERENCE	Calculates difference to be 3.3 (3.1 to 3.5) ±0.2 3.3 99.8 - 96.5	Determined by subtracting indicated value from 99.8% calculated power.	
4	3	Determine the desired indication, including sign, of NIS as follows: N44 PRESENT IND ± N44 DIFFERENCE = N44 DESIRED IND	Calculates desired N-44 indication to be 99.8% 100%	Determined by algebraically summing N-44 difference from Step 2 (JPM Step 3) and N-44 present indicated value	
5	4	Calculation in Steps 2 and 3 independently verified.	Requests independent verification of calculation		
CUE:		**CUE: FOR PURPOSES OF THIS JPM ONLY, INDEPENDENT VERIFICATION WILL NOT BE PERFORMED.**			

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
6	5	Before each channel adjustment, verify that there are no PR trip bistables energized on TSLB-3 or TSLB-4, except for trip bistables that are manually blocked	Verifies no PR trip bistables energized on TSLB-3 or TSLB-4, with exception of PR High Flux Lo Setpoint, which is manually blocked		✓
7	6	On Drawer A, place the METER RATE switch in FAST	Places Meter Rate switch to Fast position		✓
*8	7	**Before adjustment of GAIN potentiometer for N-44, the ROD BANK SELECTOR switch should be placed in MANUAL to prevent undesired rod movement during the adjustment**	**Places Rod Bank Selector switch in Manual position**	Critical to prevent inadvertent rod motion due to power mismatch circuit	✓
		CUE: IF CANDIDATE DIRECTS RO TO PLACE RODS IN MANUAL, DIRECT CANDIDATE TO PERFORM ACTION TO PLACE ROD CONTROL IN MANUAL.		Read Page By Pass	
9	8	Before adjustment of GAIN potentiometer for N-44, the Feed Reg Bypass Valve Controllers should be placed in manual to prevent undesired valve motion during adjustment	Verifies Feed Reg Bypass Valve Controllers are already in Manual position		✓
10	9	If a RATE TRIP signal occurs, before going to the next channel, reset the RATE TRIP signal.	Resets any Rate Trip signals generated before completing task for channel N-44		✓
*11	10	**At each power range drawer B, unlock and slowly adjust GAIN potentiometer until the indicated power is within 0.2% of the DESIRED IND from Step 3**	**Unlocks and slowly adjusts Gain pot in CW direction until indicated power is within 0.2% of value previously determined in Step 3 (JPM Step 4)**	Critical to establish proper indication and operation of channel N-44	✓
12	11	If there is insufficient fine gain adjustment using the drawer B gain potentiometer, perform the following:	N/A's step since adequate adjustment exists		

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
13	12	Lock GAIN potentiometer in place	Locks Gain pot on N-44 in place		✓
14		Independent verification is required	Requests independent verification		✓
		CUE: FOR PURPOSES OF THIS JPM ONLY, INDEPENDENT VERIFICATION WILL NOT BE PERFORMED.			
15	13	Record the as left GAIN potentiometer setting	Records as left Gain pot setting (within ± 0.02 of actual)	1.83	✓
16	14	On Drawer A, place the METER RATE switch in SLOW.	Places Meter Rate switch in Slow position		✓
17		Independent verification is required	Requests independent verification		✓
		CUE: FOR PURPOSES OF THIS JPM ONLY, INDEPENDENT VERIFICATION WILL NOT BE PERFORMED.			
18	15	Record the new indicated power (on drawer A)	Records the new N-44 indicated power	96.9	✓
***19**	**16**	**Verify that new indicated power is within 2% of desired indication from Step 3 above.**	**Verifies that N-44 indicated power is within 2% of desired indication**	Critical since 2% is limit for performing gain adjustment	✓
20	17	Place ROD BANK SELECTOR switch in the desired position	Places Rod Control back in automatic		✓
21	18	Place Feed Reg Bypass Valve Controllers in the desired position	Leaves Feed Reg Bypass Valves in manual		✓
		TASK COMPLETE			

STOP TIME: 1958

Power Range NI Gain Adjustment

Person(s) Performing Checklist:

Initials	Name (Print)	Initials	Name (Print)
		B	Ken Bailey

Remarks - Indicate any component not in the prescribed position.

Checklist Started Time _____ Date _____

Checklist Completed Time _____ Date _____

Approved by _____ _____
Unit SCO Date

After receiving the final review signature, this OP Attachment becomes a QA RECORD and should be submitted to Document Services.

Power Range NI Gain Adjustment

1. Record the as found setting of the GAIN potentiometer on the front of Power Range Drawer B.

N41 NA B N42 NA B N43 NA B N44 _____

NOTE: Calculated power shall be that power calculated by OST-1000, OST-1004 or other applicable plant procedures.

CAUTION

To prevent a possible non-conservative adjustment being made, no significant power decreases should be made between the time of performance of the calorimetric and the following adjustments.

---

2. Determine the difference, including sign, between the calculated power and the indicated reactor power at the time data was obtained as follows:

NA B	CALC PWR	-	NA A	N41 IND PWR	=	NA A	N41 DIFFERENCE
NA B	CALC PWR	-	NA B	N42 IND PWR	=	NA B	N42 DIFFERENCE
NA A	CALC PWR	-	NA B	N43 IND PWR	=	NA B	N43 DIFFERENCE
_____	CALC PWR	-	_____	N44 IND PWR	=	_____	N44 DIFFERENCE

3. Determine the desired indication, including sign, of NIS as follows:

NA B	+	NA B	=	NA B
N41 PRESENT IND		N41 DIFFERENCE		N41 DESIRED IND
NA B	+	NA B	=	NA B
N42 PRESENT IND		N42 DIFFERENCE		N42 DESIRED IND
NA B	+	NA B	=	NA B
N43 PRESENT IND		N43 DIFFERENCE		N43 DESIRED IND
_____	+	_____	=	_____
N44 PRESENT IND		N44 DIFFERENCE		N44 DESIRED IND

4. Calculation in Steps 2 and 3 independently verified. ____

CAUTION

Adjustments should not be made to one Power Range channel while another channel has tripped bistables. This may cause a reactor trip due to required logic being completed. (Ref. CR 903027-5)

---

5. Before each channel adjustment, verify that there are no PR trip bistables energized on TSLB3 or TSLB-4, except for trip bistables that are manually blocked. (Channels not being adjusted may be marked N/A)

N41 NA B N42 NA B N43 NA B N44 ____

NOTE: After the GAIN adjustment, the METER RATE switch may be returned to SLOW to evaluate if the adjustment is adequate.

6. On Drawer A, place the METER RATE switch in FAST. ____

N41 N/A N42 N/A N43 N/A N44 ___

7. Before adjustment of GAIN potentiometer for N44, the ROD BANK SELECTOR switch should be placed in MANUAL to prevent undesired rod movement during the adjustment. ____

8. Before adjustment of GAIN potentiometer for N44, the Feed Reg Bypass Valve Controllers should be placed in manual to prevent undesired valve motion during adjustment. ____

9. If a RATE TRIP signal occurs, before going to the next channel, reset the RATE TRIP signal. (Otherwise N/A) ____

CAUTION

Adjustment of GAIN potentiometer should be made slowly to avoid producing a RATE TRIP signal.

---

10. At each power range drawer B, unlock and slowly adjust GAIN potentiometer until the indicated power is within 0.2% of the DESIRED IND from Step 3. ____

11. If there is insufficient fine gain adjustment using the drawer B gain potentiometer, perform the following: (Sign off space should be initialed after completion of all NI adjustments), (Step is N/A if coarse gain adjustment is not performed)

NOTE: Substeps a and b may need to be done simultaneously to prevent reaching the 103% Rod Stop.

a. On the front of Power Range drawer B, set the GAIN potentiometer to 5. ____

b. Open the Power Range drawer B, unlock and adjust the Coarse Level Adjust potentiometer (R312) (located on the lower right rear on the base plate) until indicated power is within 0.5% of the DESIRED IND from Step 8.
____

c. Record the Coarse Level Adjust setting. ____

N41 N/A B N42 N/A B N43 N/A B N44 ____

d. Lock the Coarse Level Adjust potentiometer (R312). ____

N41 N/A B Position/Verify

N42 N/A B Position/Verify

N43 N/A B Position/Verify

N44 ____/____ Position/Verify

e. Continue with Step 10 above. ____

12. Lock GAIN potentiometer(s) in place. Independent verification is required. ____

N41 N/A / Position/Verify

N42 N/A / Position/Verify

N43 N/A / Position/Verify

N44 ____ / Position/Verify

13. Record the as left GAIN potentiometer setting(s): ____

N41 N/A N42 N/A N43 N/A N44 ____

14. On Drawer A, place the METER RATE switch in SLOW. ____

N41 N/A / Position/Verify

N42 N/A / Position/Verify

N43 N/A / Position/Verify

N44 ____ / Position/Verify

15. Record the new indicated power (on drawer A) ____

N41 N/A N42 N/A N43 N/A N44 ____

16. Verify that new indicated power is within 2% of desired indication from Step 8 above. Initial in appropriate space(s).

N41 N/A N42 N/A N43 N/A N44 ____

17. Place ROD BANK SELECTOR switch in the desired position. ____

18. Place Feed Reg Bypass Valve Controllers in the desired position. ____

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The plant is at 100% equilibrium conditions.

Following maintenance on PR Channel N-44, all required testing has been completed and the channel is ready to be returned to service. A calorimetric has just been performed per OST-1004, "Power Range Heat Balance, Computer Calculation, Daily Interval, Mode 1 (Above 15% Power)."

The calculated power is 99.8%. Indicated power on PR channel N-44 at the time of the calorimetric was at its current value. Rod Control is in Automatic.

INITIATING CUE(S):

You are to perform the Power Range NI Gain Adjust for PR channel N-44 in accordance with OP-105, "Excore Nuclear Instrumentation," Section 8.3 and Attachment 2.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM COM-B.2.a

Local Actions for a Dropped Rod Recovery

CANDIDATE: _____

EXAMINER: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

TASK: Local Actions for a Dropped Rod Recovery

ALTERNATE PATH: None

FACILITY JPM NUMBER: IP-153

KA: 003AA1.02 IMPORTANCE: SRO 2.9 RO 2.9

KA STATEMENT: Operate the demand position counter and pulse/analog converter

TASK STANDARD: Local actions have been completed for rod recovery

PREFERRED EVALUATION LOCATION: SIMULATOR ___ IN PLANT ✓

PREFERRED EVALUATION METHOD: PERFORM ___ SIMULATE ✓

REFERENCES: AOP-001, Malfunction of Rod Control and Indication System

VALIDATION TIME: 15 MINUTES TIME CRITICAL: No

CANDIDATE: _____

START TIME: _____ FINISH TIME: _____

PERFORMANCE TIME: _____ MINUTES

PERFORMANCE RATING: SAT _____ UNSAT _____

COMMENTS: _____

_____

_____

_____

_____

EXAMINER: _____ _____
Signature Date

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

Keys 33-36

AOP-001, "Malfunction of Rod Control and Indication System"

READ TO OPERATOR

INSTRUCTIONS TO CANDIDATE:

I will explain the initial conditions and state the task to be performed. All in plant steps shall be performed for this JPM, including any required communications. DO NOT operate any equipment without my permission. I will provide initiating cues and reports on other actions when directed or asked by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task, return the handout sheet I provide you.

INITIAL CONDITIONS:

The plant was at 50% power when control bank D rod H2 dropped to the bottom of the core.

Plant conditions have stabilized and the problem with rod H2 is fixed.

The crew is ready to retrieve the dropped rod.

INITIATING CUE(S):

Rod H2 is ready to be retrieved.

The SCO has directed you to obtain the correct key(s) and perform the local actions associated with the retrieval of the dropped rod in accordance with AOP-001, "Malfunction of Rod Control and Indication System," Section 3.1.

START TIME: _____

*** DENOTES CRITICAL STEP**

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
1	NA	Obtain copy of procedure	Obtains current copy of AOP-001, Section 3.1		
		CUE: THE CONTROL ROOM INFORMS YOU THEY ARE READY FOR YOU TO PERFORM STEPS 3.1.12, 3.1.13, AND 3.1.14.			
2	3.1.12	Obtain the key for the Control Rod Disconnect Switch Box (keys 33-36)	Obtains keys 33-36		
***3**	**3.1.13**	**Position lift coil disconnect switches for rods in the affected bank as follows:** • **Dropped rod - ROD CONNECTED (down)** • **All other rods - ROD DISCONNECTED (up)**	• **Unlocks cabinet and places the disconnect switches for CBD group 1 rods B8, H14, and P8 and group 2 rods F6, F10, K10, and K6 in the up position** • Ensures rod H2 in CBD group 1 is in the down position • Notifies Control Room of disconnect switch alignment	Only critical to open disconnect switches for affect rods Critical to ensure only rod H2 moves during retrieval	
		CUE: THE DISCONNECT SWITCHES FOR CBD GROUP 1 RODS B8, H14, AND P8, AND FOR GROUP 2 RODS F6, F10, K10, AND K6 ARE IN THE UP POSITION. THE DISCONNECT SWITCH FOR CBD ROD H2 IS IN THE DOWN POSITION.			

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
*4	3.1.14	**Record the Pulse-To-Analog (P/A) converter reading for the affected bank:** • **Bank** • **P/A Reading**	• **Opens the P/A converter cabinet, selects Control Bank D, and records the reading for Control Bank D** • Informs Control Room that Steps 3.1.12, 3.1.13, and 3.1.14 are complete	Only critical to record P/A reading Critical to ensure proper response after resetting P/A converter later	
		CUE: CONTROL BANK D HAS BEEN SELECTED AND THE INDICATION IS 165.			
		CUE: THE CONTROL INFORMS YOU THAT ROD H2 HAS BEEN RETRIEVED AND YOU ARE TO PERFORM STEPS 3.1.23 AND 3.1.24.			
CUE		TRANSMIT			
*5	3.1.23	**Repeatedly Press the "Master Cycler +1" button as needed to produce the following light status on Card A105:** • **Top light - LIT** • **Middle light - NOT LIT** • **Bottom light - LIT**	**Depresses the Master Cycler +1 button until the light status on Card A105 is:** • **Top light - LIT** • **Middle light - NOT LIT** • **Bottom light – LIT** • Informs Control Room that Master Cycler indicates correctly	Only critical to ensure Master Cycler light display is correct Critical to ensure proper response of rod control system following completion of rod retrieval	
		CUE: THE LIGHT STATUS ON CARD A105 IS THE TOP AND BOTTOM LIGHTS ARE LIT AND THE MIDDLE LIGHT IS NOT LIT.			

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
*6	3.1.24	**Close all lift coil disconnect switches opened in step 13.**	• **Places the disconnect switches for CBD group 1 rods B8, H14, and P8 and group 2 rods F6, F10, K10, and K6 in the down position** • Closes and locks cabinet • Informs Control Room that disconnect switches are in connect position	Only critical to connect disconnect switches Critical to ensure movement of rods following completion of rod retrieval	
		CUE: ALL DISCONNECT SWITCHES ARE IN THE DOWN POSITION.			
		CUE: THE CONTROL INFORMS YOU THAT ROD H2 HAS BEEN RETRIEVED AND YOU ARE TO PERFORM THE RNO STEPS OF STEP 3.1.26.			
*7	3.1.26. a (RNO)	**Perform the following at the Pulse-To-Analog (P/A) Converter:** • **Position the Bank Display Selector Switch to the bank recorded in step 14**	**Positions the Bank Display Selector Switch to the Bank D position**	Critical to ensure proper operation of P/A converter and rod insertion limit monitor	
		CUE: BANK DISPLAY SELECTOR SWITCH IS IN THE BANK D POSITION.			
*8	3.1.26. b (RNO)	• **Position and Hold the Auto-Manual switch in MANUAL**	**Positions and Holds the Auto-Manual switch in MANUAL**	Critical to ensure proper operation of P/A converter and rod insertion limit monitor	
		CUE: AUTO-MANUAL SWITCH IS BEING HELD IN THE MANUAL POSITION.			

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
***9**	**3.1.26. c (RNO)**	• **Repeatedly Press either the UP pushbutton or the DOWN pushbutton as needed to make the display match the P/A reading recorded in step 14**	**Depresses UP pushbutton until P/A reading indicates 165**	Critical to ensure proper operation of P/A converter and rod insertion limit monitor	
		CUE: BEFORE DEPRESSING THE UP PUSHBUTTON, THE P/A READING IS 163 STEPS. 330			
		CUE: AFTER DEPRESSING THE ~~UP~~ PUSHBUTTON, THE P/A READING IS 165 STEPS. Down			
10	3.1.26. d (RNO)	• Release the Auto-Manual switch	Releases Auto-Manual switch		
		CUE: THE AUTO-MANUAL SWITCH HAS BEEN RELEASED.			
11	3.1.26. e (RNO)	• Position the Bank Display Selector Switch to DISPLAY OFF	• Positions Bank Display Selector Switch to DISPLAY OFF and closes cabinet • Informs Control Room that RNO steps of Step 3.1.26 are complete		
		CUE: BANK DISPLAY SELECTOR SWITCH IS IN THE DISPLAY OFF POSITION.			
		TASK COMPLETE			

STOP TIME: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM COM-B.2.b

Manually Control Charging Due to a Loss of IA

CANDIDATE: _____

EXAMINER: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

TASK: Manually Control Charging Due to a Loss of IA

ALTERNATE PATH: None

FACILITY JPM NUMBER: IP-084

KA: 004.A2.11 IMPORTANCE: SRO 4.2 RO 3.6

KA STATEMENT: Correct, control, or mitigate the consequences on CVCS caused by the following malfunction: Loss of IAS

TASK STANDARD: Charging flow is being controlled locally

PREFERRED EVALUATION LOCATION: SIMULATOR ___ IN PLANT ✓

PREFERRED EVALUATION METHOD: PERFORM ___ SIMULATE ✓

REFERENCES: AOP-017, Loss of Instrument Air

VALIDATION TIME: 10 MINUTES TIME CRITICAL: No

CANDIDATE: _____

START TIME: _____ FINISH TIME: _____

PERFORMANCE TIME: _____ MINUTES

PERFORMANCE RATING: SAT _____ UNSAT _____

COMMENTS: _____

_____

_____

_____

_____

EXAMINER: _____ _____
Signature Date

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

AOP-017, "Loss of Instrument Air"

READ TO OPERATOR

INSTRUCTIONS TO CANDIDATE:

I will explain the initial conditions and state the task to be performed. All in plant steps shall be performed for this JPM, including any required communications. DO NOT operate any equipment without my permission. I will provide initiating cues and reports on other actions when directed or asked by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task, return the handout sheet I provide you.

INITIAL CONDITIONS:

The plant is at 100 percent power.

An instrument air header has ruptured on the RAB 236-foot elevation. The header has been isolated but FCV-122, Charging Flow Control Valve, has failed open.

The Control Room has isolated charging (1CS-235 and 238 are shut). Pressurizer level is 55 percent.

INITIATING CUE(S):

You have been directed to locally control charging flow per AOP-017, "Loss of Instrument Air," Section 3.1, Step 6.b (RNO).

START TIME: _____

*** DENOTES CRITICAL STEP**

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
1	NA	Obtain copy of procedure	Obtains current copy of AOP-017, Section 3.1		
2	6.b.(1) (RNO)	Locally control charging flow by shutting at least one of the following: • 1CS-235, Charging Line Isolation • 1CS-238, Charging Line Isolation	Contacts Control Room and requests 1CS-235 and /or be closed 1CS-238		
		CUE: CONTROL ROOM REPORTS BOTH 1CS-235 AND 1CS-238 ARE CLOSED (ALSO GIVEN ON INITIATING CUE).			
***3**	**6.b.(2) (RNO)**	**Locally shut 1CS-228, Charging Line FCV Inlet Isolation Valve**	• **Rotates valve handwheel in CW direction until no further movement is obtained** • **Informs Control Room that 1CS-228 is closed**	Critical to isolate failed open FCV-122 to allow control of charging flow	
		CUE: HANDWHEEL FOR 1CS-228 HAS BEEN ROTATED IN CW DIRECTION AND NO FURTHER MOVEMENT CAN BE OBTAINED.			
***4**	**6.b.(3) (RNO)**	**Verify open the following:** • **1CS-235, Charging Line Isolation** • **1CS-238, Charging Line Isolation**	**Contacts Control Room and requests the following valves both be opened:** • **1CS-235** • **1CS-238**	Critical to ensure both valves are open to allow charging flow to RCS	
		CUE: CONTROL ROOM REPORTS BOTH 1CS-235 AND 1CS-238 ARE OPEN.			

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
*5	**6.b.(4) (RNO)**	**(CONTINUOUS ACTION) Locally throttle 1CS-227, Norm Charging Line FCV Bypass, to obtain desired charging flow**	**Throttles open 1CS-227 by rotating handwheel in CCW direction until directed to stop opening by Control Room**	Critical to provide required charging flow to RCS	
		CUE: HANDWHEEL FOR 1CS-227 IS BEING ROTATED IN CCW DIRECTION. CONTROL ROOM DIRECTS YOU TO STOP OPENING VALVE AND MAINTAIN CURRENT POSITION.			
6	6.b.(4) (RNO)	Maintain current position of 1CS-227, Norm Charging Line FCV Bypass	• Stops opening 1CS-227 when directed by Control Room • Informs Control Room that 1CS-227 is being throttled to required position		
		TASK COMPLETE			

STOP TIME: _____

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The plant is at 100 percent power.

An instrument air header has ruptured on the RAB 236-foot elevation. The header has been isolated but FCV-122, Charging Flow Control Valve, has failed open.

The Control Room has isolated charging (1CS-235 and 238 are shut). Pressurizer level is 55 percent.

INITIATING CUE(S):

You have been directed to locally control charging flow per AOP-017, "Loss of Instrument Air," Section 3.1, Step 6.b (RNO).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM COM-B.2.c

Start Up a Hydrogen Recombiner

CANDIDATE: _____

EXAMINER: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

TASK: Start Up a Hydrogen Recombiner

ALTERNATE PATH: None

FACILITY JPM NUMBER: IP-020

KA: 028A4.01 IMPORTANCE: SRO 4.0 RO 4.0

KA STATEMENT: Operate the Hydrogen Recombiner controls

TASK STANDARD: Electric Hydrogen Recombiner B is in operation with the proper power setting

PREFERRED EVALUATION LOCATION: SIMULATOR ___ IN PLANT ✓

PREFERRED EVALUATION METHOD: PERFORM ___ SIMULATE ✓

REFERENCES: OP-125, Post Accident Hydrogen System

VALIDATION TIME: 20 MINUTES TIME CRITICAL: No

CANDIDATE: _____

START TIME: _____ FINISH TIME: _____

PERFORMANCE TIME: _____ MINUTES

PERFORMANCE RATING: SAT _____ UNSAT _____

COMMENTS: _____

_____

_____

_____

_____

EXAMINER: _____ _____
Signature Date

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

OP-125, "Post Accident Hydrogen System"

READ TO OPERATOR

INSTRUCTIONS TO CANDIDATE:

I will explain the initial conditions and state the task to be performed. All in plant steps shall be performed for this JPM, including any required communications. DO NOT operate any equipment without my permission. I will provide initiating cues and reports on other actions when directed or asked by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task, return the handout sheet I provide you.

INITIAL CONDITIONS:

The plant has sustained a LOCA.

RCS pressure is 350 psig and core exit T/Cs are > 1200°F.

INITIATING CUE(S):

EPP-FRP-C.1, "Response to Inadequate Core Cooling," directs starting up a hydrogen recombiner.

The Unit SCO directs you to start up Electrical Hydrogen Recombiner B using OP-125, "Post Accident Hydrogen System," Section 5.1.

START TIME: _____

*** DENOTES CRITICAL STEP**

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
1	NA	Obtain copy of procedure	Obtains current copy of OP-125, Section 5.1		
		CUE: INITIAL CONDITIONS FOR SECTION 5.1 ARE COMPLETED.			

2	5.1.2.1.a	Perform the following calculation:
		• Measure the containment pressure after a LOCA using one of the following:
		  • SPTOP
		  • PI-950 SA, PI-952 SA, PI-951 SB, PI-953 SB
			Refers to SPTOP or MCB containment pressure indications to determine containment pressure		

		CUE: CONTAINMENT PRESSURE IS 6 PSIG.			
3	5.1.2.1.b	• Determine the pre-LOCA containment temperature from OST-1021 records	Refers to DSR OST-1021 to determine last known containment temperature prior to LOCA		
		CUE: PRE-LOCA CONTAINMENT TEMPERATURE WAS 90°F.			
4	5.1.2.1.c	• Determine Pressure Factor (Cp) from Attachment 8.	Refers to Attachment 8 of OP-125 and determines Cp value of 1.29 (1.28 to 1.30)		

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
***5**	**5.1.2.1.d**	• **Calculate required Electric Hydrogen Recombiner (EHR) power by multiplying Cp x Reference Power as shown on Attachment 8.**	**Refers to Attachment 8 of OP-125 and calculates EHR power to be 51.91 KW (51.51 to 52.31)** 50.3 (49.95 - 50.8)	Critical to determine value to set EHR final setting NOTE: Using values for EHR A in error will result in range of 52.84 to 53.67	
6	5.1.2.2.a	At the EHR Control Panel B-SB, perform the following: • Verify lit, Power In Available, white light	Verifies Power In Available white light is lit		
		CUE: 'POWER IN AVAILABLE' WHITE LIGHT IS LIT.			
7	5.1.2.2.b	• Set the Power Adjust potentiometer at zero (000).	Rotates Power Adjust pot fully CCW to zero		
		CUE: 'POWER ADJUST' POT HAS BEEN ROTATED FULLY TO ZERO POSITION.			
***8**	**5.1.2.2.c**	• **Place the Power Out switch to on**	**Places Power Out switch to on position**	Critical to provide output from EHR	
		CUE: 'POWER OUT' SWITCH IS IN ON POSITION.			
9	5.1.2.2.d	• Verify lit the red light on the switch plate	Verifies red light lit on switch plate		
		CUE: RED LIGHT ON SWITCH PLATE IS LIT.			

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
10	5.1.2.2.f	• Turn the Power Adjust potentiometer clockwise until 5 KW is obtained on the Power Out meter.	Rotates Power Adjust pot CW until Power Out Meter indicates 5 KW		
		CUE: 'POWER ADJUST' POT HAS BEEN ROTATED IN CW DIRECTION AND 'POWER OUT' METER READS 5 KW.			
11	5.1.2.2.g	• Maintain 5 KW for 10 minutes.	Maintains current position on Power Adjust pot for 10 minutes		
		CUE: 10 MINUTES HAVE ELAPSED.			
12	5.1.2.2.h	• Turn the Power Adjust potentiometer clockwise until 10 KW is obtained on the Power Out meter	Rotates Power Adjust pot CW until Power Out Meter indicates 10 KW		
		CUE: 'POWER ADJUST' POT HAS BEEN ROTATED IN CW DIRECTION AND 'POWER OUT' METER READS 10 KW.			
13	5.1.2.2.i	• Maintain 10 KW for 10 minutes.	Maintains current position on Power Adjust pot for 10 minutes		
		CUE: 10 MINUTES HAVE ELAPSED.			
14	5.1.2.2.j	• Turn the Power Adjust potentiometer clockwise until 20 KW is obtained on the Power Out meter.	Rotates Power Adjust pot CW until Power Out Meter indicates 20 KW		
		CUE: 'POWER ADJUST' POT HAS BEEN ROTATED IN CW DIRECTION AND 'POWER OUT' METER READS 20 KW.			

JPM STEP	PROC STEP	ELEMENT	STANDARD	NOTES	SAT / UNSAT
15	5.1.2.2.k	• Maintain 20 KW for 5 minutes.	Maintains current position on Power Adjust pot for 5 minutes		
		CUE: 5 MINUTES HAVE ELAPSED.			
***16**	**5.1.2.2.l**	• **Turn the Power Adjust potentiometer clockwise until the required power setting calculated in Step 5.1.2.1.d (JPM Step 5) is obtained on the Power Out meter.**	**Rotates Power Adjust pot CW until Power Out Meter indicates 51.51 to 52.31 KW (Value determined in JPM Step 5)** 50.3	Critical to establish proper power output from EHR	
		CUE: 'POWER ADJUST' POT HAS BEEN ROTATED IN CW DIRECTION AND 'POWER OUT' METER READS 51.51 to 52.31 KW (Value determined in JPM Step 5).			
		TASK COMPLETE			

STOP TIME: _____

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The plant has sustained a LOCA.

RCS pressure is 350 psig and core exit T/Cs are > 1200°F.

INITIATING CUE(S):

EPP-FRP-C.1, "Response to Inadequate Core Cooling," directs starting up a hydrogen recombiner.

The Unit SCO directs you to start up Electrical Hydrogen Recombiner B using OP-125, "Post Accident Hydrogen System," Section 5.1.

PowerTrax Operating Strategy Generator Module – 5 mw/min back down

Today's Date

52 EFPD

Step	Date	Time	Power	ppm B	Gal Bor	Gal Dil	R Step	AFD	AO-XE	XE Worth
1		0000	100	1177	84	0	218	--		2580
2		0015	92	1187	72	0	210			2589
3		0030	84	1196	75	0	205			2598
4		0045	76	1205	79	0	199			2613
5		0100	68	1209	24	0	195			2644
6		0115	60	1215	36	0	190			2683
7		0130	52	1220	29	0	180			2724
8		0145	44	1225	45	0	170			2769
9		0200	38	1230	0	0	149			2819
10		0215	30	1230	0	0	140			2878
11		0230	22	1230	0	0	128			2943
12		0245	14	1230	0	0	116			3025
13		0300	6	1230	0	0	100			3134
14										
15										
16										
17										

SI Accumulator Sample Required Reference Levels

INSTRUCTIONS

NOTE:
- An SI Accumulator boron sample is not required when the volume increase makeup source is the Refueling Water Storage Tank (RWST) and the RWST has not been diluted since verifying that the RWST boron concentration is equal to or greater than the Accumulator boron concentration limit. (Ref. T.S. 3.5.1)
- The Sample Required Reference Level is an aid to determine if Tech Spec event driven surveillance sampling of an Accumulator is required due to a level increase of 9% or more from a source other than the RWST at its required boron concentration. The Sample Required Reference Level is the Accumulator level at the time the last sample was drawn plus an additional 9%. This value must be adjusted for any decreases in Accumulator level since the last sample. This value must also be adjusted for any increase in Accumulator level due to makeup from the undiluted RWST since the last sample. The Sample Required Reference Level is calculated and adjusted per this Attachment. This ensures that any cumulative level increase of greater than or equal to 9%, from a source other than the undiluted RWST, will be detected.
- Any step that does not apply should be marked N/A.
- Current Required Reference Levels are maintained on the Status Board and in the RO narrative log.

1. Update the Sample Required Reference Level on TABLE 1 for any new samples and record on status board and in the RO narrative log. _____

2. Verify all calculations in TABLE 1. _____

3. Update the Sample Required Reference Level on TABLE 2 for any of the following and record on staus board and in the RO narrative log:
   - Decrease in level due to draining or temperature changes.
   - Increase in level due to makeup to Accumulators from undiluted RWST.

   _____

4. Verify all calculations in TABLE 2. _____

5. Enter details of any changes to the Sample Required Reference Level in the Comments section of the respective TABLE. _____

SI Accumulator Sample Required Reference Levels (continued)

TABLE 1:

Accumulator Reference Level initial calculation after sampling. After 2400 hours N/A any blank spaces. If multiple samples per Accumulator are required, attach other sheets (Attachment 6 sheet 2).

Accum	Time of Sample	Level at the time of the last sample		+	Level increase requiring additional sampling (9%)	=	Sample Required Reference Level	Performed by	
								Init	Verify
A		LI-920			9 %				
		LI-922			9 %				
B		LI-924			9 %				
		LI-926			9 %				
C		LI-928			9 %				
		LI-930			9 %				

Comments:

SI Accumulator Sample Required Reference Levels (continued)

TABLE 2:

Accumulator Reference Level Adjustments for level changes due to draining an Accumulator, or decrease due to Containment temperature effects, or level increase from the RWST with RWST verified within Accumulator boron limits. After 2400 hours, N/A any blank spaces. If multiple entries per Accumulator are required, attach other sheets (Attachment 6 sheet 3).

Accum	Time	Previous Sample Required Reference Level		+	Final Level	-	Initial Level	=	New Sample Required Reference Level	Performed by	
										Init	Verify
A		LI-920									
		LI-922									
B		LI-924									
		LI-926									
C		LI-928									
		LI-930									

Comments:

5.1.8 Instrument Reading and Control Indications

R 1. The Unit SCO and Control Operators have authority and responsibility to limit plant operations, or to shut down the plant when warranted by plant conditions, unusual circumstances or unexplained events. Such actions may be warranted on the basis of instrument readings or control indications not consistent with expected plant responses. When analyzing such situations, shift operating personnel must consider instrument readings and control indications to be true unless readings are proven to be incorrect. (Reference 2.4.0.0.3)

2. Operations personnel will not make changes to RPS or ESFAS setpoints that are not specifically directed by approved Plant Operating Manual procedures. (Reference 2.3.0.0.5 and 2.3.0.0.6)

3. Control board indication(s) affected by the performance of approved tests or a clearance should have a colored marker placed on or next to the indicator. The test/clearance number may be written on the marker for reference. Coding Annunciators will be per Section 5.1.13.

5.1.9 Maximum Acceptable Deviation Between Redundant Indicators and Recorders

1. Many important process variables are redundantly sensed, processed, transmitted, indicated and recorded. Many redundant transmitters also provide signals to Reactor Protection and Safeguards Logic Systems to assure that single failures do not cause nor prevent safety function initiation. It is extremely important that the performance of instrumentation systems be carefully monitored to quickly identify instrument malfunctions which could show a loss of or non-conservative operation of Reactor Protection or Safeguards System actuation.

2. While the guidance specified here primarily applies to instrumentation requiring channel checks per Tech Specs, the Operating staff must also be alert to other instruments which could be indicating improperly. This may be based on known plant conditions and prompt corrective actions must be initiated to correct such situations.

3. Redundant safety significant indicators are checked per Tech Spec Daily Surveillance Requirements (DSR). Checks are made to determine deviations between the highest and lowest indication of redundant indicators for the same parameter with the same scale. A deviation greater than 5% of full range of movement is unacceptable. Also, any instrument pegged below zero, when it is known that the instrument should not be pegged low by design, is unacceptable. The following are examples of instruments with greater than 5% range of movement:

   - For steam flow loops, **if power is less than or equal to 19% rated thermal power**, then steam flow should be greater than 90% of indicated feed flow AND the tolerance between redundant steam flow channels should be within 11% of full scale. If it appears that the 5% tolerance will not be met before exceeding 19% turbine load, then the Responsible Engineer should be contacted to evaluate the specific situation.

5.1.9 Maximum Acceptable Deviation Between Redundant Indicators and Recorders (continued)

- When channel checking the Main Feedwater Flow Transmitters between 10% and 5% Rated Thermal Power the maximum difference between channels should be less than or equal to 350 KPPH. Below 5% Rated Thermal Power the maximum difference between channels should be less than or equal to 500 KPPH. (Reference ESR 9500910)

- For the Auxiliary Feedwater Flow Transmitters a channel check is performed with flow isolated. At zero actual AFW flow, the transmitter output could be as high as 23.8 KPPH or as low as (-)23.8 KPPH and still be in calibration. The channel should be considered Operable when the indication is within this band and the pointer is not resting on the lower stop of the indicator. The pointer can be verified not resting on the lower stop by tapping the indicator to determine the position of the stop. (Reference ESR 96-00060)

R

- During shutdown operations, the source range NIs provide continuous indication of core subcriticality except during periods of required testing, or core off-load. The source range NIs are utilized to mitigate the effects of a boron dilution accident that occurs when the reactor is subcritical. Electromagnetic interference (EMI) affecting both channels or interference causing excessive count rate indication by a factor of ten (one decade) or greater are not acceptable. EMI from identifiable maintenance activities, such as welding, is not considered a functional failure.

  To determine operability during shutdown conditions perform and verify the following calculation: (Reference ESR 9600179)

  LOG (Highest SR NI) - LOG (Lowest SR NI) $\leq$ 1.0

  The difference between individual channels shall not exceed 50,000 counts per second. (Reference FSAR table 7.5.1-14)

  The audible function of the Source Range monitors should be verified Operable per Tech Spec 3.9.2 during Mode 6 as part of the channel check of the Source Range instruments.

- When a NFMS monitor N-60 or N-61 is being used as a replacement Source Range monitor to satisfy T.S. 3.9.2, acceptable channel check criteria to calculate and verify is as follows: (Comparison of SR with the replacement NFMS)

  LOG (Highest SR(NFMS) - LOG (lowest SR(NFMS) $\leq$ 2.0*

  * This value may be increased to 3.0 if the NFMS value is less than 1 cps.

- FI-01AV-4842ASA and FI-01AV-4842BSB, RAB Emergency Exhaust A(B) Flow Indicators, with no actual flow may indicate as high as 700 cfm or be pegged low and still be within calibration.

5.1.9 Maximum Acceptable Deviation Between Redundant Indicators and Recorders (continued)

4. The 5% guidance applies only to the MCB and ACP instrumentation. It is in no way intended to apply to instrumentation of different types sensing the same parameter, that is, a direct reading local pressure gauge versus a pressure transmitter driving a remote meter. The channel most likely to be out of tolerance is the channel with the greatest deviation from the remaining channels. If only two channels indicate the same parameter, judgement based on known conditions and past performance of the channels in question must be used to determine which channel is out of tolerance.

5. Once an unacceptable deviation is identified, corrective action consistent with the Plant Technical Specifications, and Operations Work Procedures (OWP) should be started.

6. Place a yellow sticker next to the respective MCB and ACP instrument per Section 5.1.22, as a visual reminder to the operator that an unacceptable deviation has been identified, per AP-38, Deficiency Tag Procedure.

7. The following provides a guide for initiating a work request:

   a. Declare the channel inoperable and insert the appropriate trips to maintain the minimum degree of redundancy. Initiate a work request.

   OR

   b. Declare the channel to be deviating by a known constant amount. If the deviation is in a conservative direction, an appropriate trip need not be inserted. If the deviation is in a non-conservative direction, insert the appropriate trips to maintain minimum degree of redundancy. Initiate a work request.

8. Any trips inserted may be reset after the protection portion of the channel is verified to be operating properly and declared operable. When an instrument is returned to normal status, remove the yellow marker from the MCB and ACP per Section 5.1.22.

5.1.10 Housekeeping

1. The Control Room is to be maintained in a clean, orderly condition to assure safe, efficient operations. Shift Personnel are responsible for Control Room upkeep.

NOTE: It is sometimes advisable not to clean or dust in some areas of the Control Room during plant operations. This is because of the potential hazards associated with bumping or otherwise moving critical controls.

2. Shift operating personnel will perform cleaning of control consoles, instrument panels and computer consoles and the orderly storage of books, drawings and records.

3. All areas assigned to Operations will be kept in a neat and orderly manner.