

Final Submittal
(Blue Paper)

FINAL ADMIN JPMS

HARRIS 2008-301
Op TEST ADMINISTERED
3/10 - 3/13/2008

Facility: HARRIS Task No.: 301144H601

Task Title: Determine the Cold, Xenon-free Boron Concentration Requirement for a Natural Circulation Cooldown JPM No.: 2008 NRC JPM RO/SRO A1-1

K/A Reference: 2.1.25 (2.8/3.1)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X
Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

INITIAL CONDITIONS:

- The unit tripped due to a loss of off-site power. All control rods have inserted.
- The operating crew is performing EPP-005, NATURAL CIRCULATION COOLDOWN.
- The unit will be taken to Cold Shutdown.
- PowerTrax is not available.
- Current RCS Boron concentration is 1125 ppm.
- Core Burnup is 130 EFPD.
- RCS B-10 Atom Percent is 19.36
- Temperature is 140°F.

Task Standard: Calculations within specified range.

Required Materials: Calculator

General References:

- EPP-005, NATURAL CIRCULATION COOLDOWN
- OST-1036, SDM CALCULATION MODES 1-5
- Curve Book

Handouts:

- EPP-005, Step 7
- OST-1036
- Curve Book (**Ensure Curve A-X-22 is available and unmarked**)

Initiating Cue:

USCO has directed you to perform step 7.a of EPP-005, determine the corrected Xe-free cold shutdown boron concentration using OST-1036.

Record values on this cue sheet once it is determined if SDM requirements are met by the current boron concentration.

C_{RODS}_____

C_{CURVE}_____

C_{REQ}_____

C_{RCS}_____

C_{SDM}_____

MET / NOT MET

(Circle one)

Time Critical Task: NO

Validation Time: 15 minutes

(Denote Critical Steps with a √)

Start Time: _____.

Performance Step: 1 Reviews EPP-005, Step 7.

Standard: Determines OST-1036 applies.

Evaluator Cue: **Provide EPP-005, Step 7.**

Comment:

Performance Step: 2 Locates/reviews OST-1036.

Standard: Determines OST-1036, Section 7.2 applies.

Evaluator Cue: **Provide OST-1036.**

Comment:

Performance Step: 3 Record the following:

- Core burn up from MCR Status board.
- Temperature for which this SDM calculation is taking credit.
- Latest available RCS boron sample.

Standard: From Initial Conditions, records:

- 130 EFPD
- 200°F, or less
- 1125 ppm

Comment:

Performance Step: 4 Record the following:

- RCS B-10 ATOM percent from MCR Status Board **OR** RWST B-10 Atom percent, **IF** following Core Reload.

Standard: Records 19.36

Evaluator Cue: RCS B-10 ATOM percent from cue sheet

Comment:

Performance Step: 5 Check rod status as follows:

- If all rods are inserted, record CRODS = 0 in Step 7.2.2.a and N/A Step 7.2.2.b.

Standard: Records 0 in 7.2.2.a and N/A's 7.2.2.b.

Comment:

Performance Step: 6 Determine Xenon free SDM boron concentration, CSDM, as follows:

a. Record the following information:

- Boron addition to compensate for stuck rods from Attachment 1 or Step 7.2.2.a.

Standard: Enters 0.

Comment:

Performance Step: 7 Determine Xenon free SDM boron concentration, CSDM, as follows:
a. Record the following information:

- Uncorrected required SDM boron concentration from curve A-X-22 (Use action level line on curve.)

Standard: Reads 2020 to 2040 ppm

Evaluator Cue:

Comment:

Performance Step: 8 Determine required Xenon free SDM uncorrected boron concentration CREQ:
 $CREQ = CRODS + CCURVE$
CREQ = _____

Standard: CREQ = 2020 to 2040 ppm

Comment:

√ **Performance Step: 9** Determine Xenon free SDM corrected boron concentration, CSDM:
 $19.9 / \text{Arcs} \times CREQ$

Standard: Divides 19.9 by 19.36 and multiplies by CREQ:
 $19.9 / 19.36$ (2020 to 2040 ppm) =
Records 2076 to 2097 ppm

Comment:

-
- ✓ **Performance Step: 10** Determine whether SDM requirements can be met by Xenon free SDM calculation:
Compare RCS boron concentration, CRCS, and Xenon free SDM corrected boron concentration, CSDM:
- CRCS _____ RCS boron sample from Step 7.2.1.
 - CSDM _____ Xenon free SDM corrected boron concentration from Step 7.2.3.c.
- If CRCS is less than or equal to CSDM, then continue with Step 7.2.5 to take credit for Xenon effects.

Standard: Determines current RCS boron concentration is <CSDM boron concentration.

Comment:

Terminating Cue: When the candidate proceeds to Step 7.2.5: This JPM is complete.

Stop Time: _____.

Job Performance Measure No.: 2008 NRC JPM RO/SRO A1-1

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS:

- The unit tripped due to a loss of off-site power. All control rods have inserted.
- The operating crew is performing EPP-005, NATURAL CIRCULATION COOLDOWN.
- The unit will be taken to Cold Shutdown.
- PowerTrax is not available.
- Current RCS Boron concentration is 1125 ppm.
- Core Burnup is 130 EFPD.
- RCS B-10 Atom Percent is 19.36
- Temperature is 140°F.

INITIATING CUE:

USCO has directed you to perform step 7.a of EPP-005, determine the corrected Xe-free cold shutdown boron concentration using OST-1036.

Record values on this cue sheet once it is determined if SDM requirements are met by the current boron concentration.

C_{RODS}_____

C_{CURVE}_____

C_{REQ}_____

C_{RCS}_____

C_{SDM}_____

MET / NOT MET

(Circle one)

RO-SROAH (KEY)

INITIAL CONDITIONS:

- The unit tripped due to a loss of off-site power. All control rods have inserted.
- The operating crew is performing EPP-005, NATURAL CIRCULATION COOLDOWN.
- The unit will be taken to Cold Shutdown.
- PowerTrax is not available.
- Current RCS Boron concentration is 1125 ppm.
- Core Burnup is 130 EFPD.
- RCS B-10 Atom Percent is 19.36
- Temperature is 140°F.

INITIATING CUE:

USCO has directed you to perform step 7.a of EPP-005, determine the corrected Xe-free cold shutdown boron concentration using OST-1036.

Record values on this cue sheet once it is determined if SDM requirements are met by the current boron concentration.

* C_{RODS} 0
C_{CURVE} 2030 (2020 to 2040)
C_{REQ} 2030 (2020 to 2040)
C_{RCS} 1125
C_{SDM} 2086.6 (2076 to 2097)

MET / NOT MET

(Circle one)

Facility: HARRIS Task No.: 005016H101

Task Title: Estimate Primary to Secondary Leak Rate JPM No.: 2008 NRC RO ADM JPM A1-2

K/A Reference: 2.1.31 (4.2)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing: **This JPM should be performed on a frozen simulator.**

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:

- The plant is at 100% power.
- A steam generator tube leak is in progress.
- AOP-016 has been entered and actions are in progress.
- OSI-PI is not available.
- Chemistry sampling has not commenced.
- Motivating air is isolated.

Task Standard: Determines leak rate to be ~25 gpd using Method 1 of AOP-016, Att. 1.

Required Materials: None

General References: AOP-016, Excessive Primary Plant Leakage, Rev 37
Curve Book

Handouts: AOP-016, Attachment 1

Initiating Cue: The USCO has directed you to perform AOP-016, Excessive Primary Plant Leakage, Attachment 1 step 3 to estimate primary to secondary leakage.

Time Critical Task: No

Validation Time: 10 minutes

SIMULATOR SETUP

IC-19

imf RMS079 (REM-1TV-3534 CVPETS) to 6.00 E-7 uCi/ml .

NOTE: Must go to RUN for the malfunction to show.

Leave simulator in FREEZE once malfunction has appeared.

(Denote Critical Steps with a √)

Start Time: _____.

Performance Step: 1 Obtain procedure.

Standard: Locates and reviews procedures.

Evaluator Cue: **Provide Curve Book and AOP-016, Att. 1, step 3 after the procedure is located.**

Comment:

√ **Performance Step: 2** ESTIMATE Primary-To-Secondary leak rate using ONE of the methods listed (no preferred method):
Method 1: Use Condenser Vacuum Pump Rad Monitor REM-3534 (Grid 2), Curve H-X-15A, Curve H-X-15B, or H-X-15C (Depending on status of motivating air)

Standard: Determines that Method 1 is required.

Comment:

√ **Performance Step: 3** Operates RM-11 to obtain reading for REM-1TV-3534 (Grid 2).

Standard: Reads REM-1TV-3534 as 6.00 E-7 µCi/ml.

Comment:

√ **Performance Step: 4** Determines which curve from Curve Book to use.

Standard: Uses Curve H-X-15C since motivating air is isolated.

Comment:

√ **Performance Step: 5** Calculates Primary to Secondary leak rate.

Standard: Determines Primary to Secondary leak rate is between 22 gpd to 27 gpd).

Comment: +/- 2.5 gpd is margin of error based on reading data from graph

Terminating Cue: When the primary to secondary leak rate has been determined and reported to the USCO: Evaluation on this JPM is complete.

Stop Time: _____.

Job Performance Measure No.: 2008 NRC RO ADM JPM A1-2

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS:

- The plant is at 100% power.
- A steam generator tube leak is in progress.
- AOP-016 has been entered and actions are in progress.
- OSI-PI is not available.
- Chemistry sampling has not commenced.
- Motivating air is isolated.

INITIATING CUE:

The USCO has directed you to perform AOP-016, Excessive Primary Plant Leakage, Attachment 1 step 3 to estimate primary to secondary leakage.

Facility: HARRIS Task No.: 341010H302
Task Title: Perform Review of Daily Surveillance Requirements Log JPM No.: 2008 NRC SRO A1-2
K/A Reference: 2.1.18 (3.0)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X
Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:

- The plant is in Mode 2, waiting for management approval to proceed to Mode 1.
- EDG "B" is synchronized to the grid for a post-maintenance test.
- The Daily Surveillance Logs (OST-1021, Attachment 4) for 2100 have been completed.
- ERFIS Pressurizer Pressures are unavailable.

Task Standard: All errors and TS actions identified

Required Materials: Perform in a location with TS or electronic access to TS available.

General References:

- OST-1021, DAILY SURVEILLANCE REQUIREMENTS, DAILY INTERVAL, MODE 1 AND 2
- Technical Specifications

Handouts:	<ul style="list-style-type: none">• Copy of a completed OST-1021, Attachment 4.• Delete all notes.• Substitute the following incorrect data:<ul style="list-style-type: none">• Modify log readings on p.19 of OST-1021 so that the 1500 reading of 457 and 456 are low and together average < 2205.• Include 455 approximately 60 psig high so that the channel check is unsat.• Condensate Storage Tank Level (both channels) progressively lowering from 85% to 60% throughout the day (TS).• RCS Loop Flow Channel FI-424 progressively lowering from 100.21 to 98.13 throughout the day (TS).• EDG Room Temperature channel TDG6903B @ 121°F (should be circled)
Initiating Cue:	You are the USCO and have just completed an emergency watch relief due to illness of the scheduled person. Review the OST-1021, Attachment 4 logs. At the conclusion of your review, discuss any findings with me.
Time Critical Task:	No
Validation Time:	20 minutes

(Denote Critical Steps with a √)

Start Time: _____.

Performance Step: 1 Obtain completed log.

Standard: Reviews handout.

Evaluator Cue:

- Provide handout for NRC SRO A1-2 after the Initial Conditions are reviewed and the Initiating Cue is provided.
- If necessary, after the applicant discusses each finding: What action, if any, is required relative to this reading?

Evaluator Note: Only the incorrect items in the logs are identified in the JPM Steps.

Comment:

√ **Performance Step: 2** Review OST-1021, Attachment 4 for approval.

Standard:

- Identifies that Pressurizer Pressure Channel 455 fails it's channel check.

Comment:

√ **Performance Step: 3** Review OST-1021, Attachment 4 for approval.

Standard:

- Identifies that the Pressurizer Pressures should have the calculations completed.
- Pressurizer pressure should be identified low out of spec based on performing calculation with only Channels 456 and 457.

Evaluator Cue:

SRO may send paperwork back to RO to do the calculations. If so cue the SRO to perform the calculations.

Comment:

√ **Performance Step: 4** Review OST-1021, Attachment 4 for approval.

Standard:

- Identifies one RCS Loop "B" Flow Channel (Sheet 5) is below Acceptance Criteria.
- Reading should be circled. TS does not apply in Mode 2.

Comment:

√ **Performance Step: 5** Review OST-1021, Attachment 4 for approval.

Standard:

- Condensate Storage Tank Level (Sheet 7) is below Acceptance Criteria.
- Reading should be circled and entry into TS 3.7.1.3 Action a – restore to operable or be in HSB within 6 hours, is required.

Comment:

√ **Performance Step: 6** Review OST-1021, Attachment 4 for approval.

Standard:

- Identifies Diesel Generator Room 261 temperature TDG6903B (Sheet 10) exceeds Acceptance Criteria.
- Reading should be circled and investigative/corrective actions implemented.

Evaluator Cue: If requested: EDG "B" has been running for 30 minutes.

Evaluator Note: Reading does not meet criteria for declaring equipment in the room inoperable.

Comment:

Terminating Cue: After all findings have been reviewed: Evaluation on this JPM is complete.

Stop Time: _____.

Job Performance Measure No.: 2008 NRC SRO A1-2

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS:

- The plant is in Mode 2, waiting for management approval to proceed to Mode 1.
- EDG "B" is synchronized to the grid for a post-maintenance test.
- The Daily Surveillance Logs (OST-1021, Attachment 4) for 2100 have been completed.
- ERFIS Pressurizer Pressures are unavailable.

INITIATING CUE:

You are the USCO and have just completed an emergency watch relief due to illness of the scheduled person. Review the OST-1021, Attachment 4 logs. At the conclusion of your review, discuss any findings with me.

SROAI-2













TRAINING ONLY

Attachment 4 - Daily Surveillance Requirements Log
Sheet 1 of 15

KEY

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	620	620	610	615	620	620	\$	\$	\$
0900	620	615	605	610	620	620	\$	\$	\$
1500	620	615	605	610	620	620	D	D	D
2100	615	615	605	610	620	620	\$	\$	\$

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	82	85		82	78		78	75	
0300	83	86	\$	82	78	\$	78	75	\$
0900	83	86	\$	82	78	\$	78	75	\$
1500	83	86	\$	82	78	\$	78	75	\$
2100	83	86	\$	82	78	\$	78	75	\$

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				CHAN. CHECK
MODE	1, 2, 3 and 4						1, 2, 3 and 4				
0300			0.00	0.00	1.22	1.30	0	0	0	0	
0900			0.00	0.00	1.22	1.30	0	0	0	0	
1500			0.00	0.00	1.22	1.30	0	0	0	0	
2100			0.00	0.00	1.22	1.30	0	0	0	0	

Attachment 4 - Daily Surveillance Requirements Log
Sheet 2 of 15

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	96	96	94	95	PO	81	82	92
0900					D			
1500					D			
2100					PO			

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	PO	PO	PO	PO	PO	PO	N/A
0900	D	D	D	D	D	D	N/A
1500	D	D	D	D	D	D	N/A
2100	PO	PO	PO	PO	PO	PO	N/A

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	61	60	60	PO
0900	61	60	60	D
1500	61	60	60	D
2100	62	60	60	PO

Attachment 4 - Daily Surveillance Requirements Log
Sheet 3 of 15

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	2210	2210	2230	N/A	N/A	10	10
0900	2205	2210	2240	N/A	N/A	10	10
1500	2200	2205	2260	N/A	N/A	10	10
2100	2205	2210	2250	N/A	N/A	10	10

INSTRUCTIONS

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

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

CALCULATIONS FOR PRESSURIZER PRESSURE

0300:	$\frac{\text{PRC0457}}{\text{PI-457}}$	+	$\frac{\text{PRC0456}}{\text{PI-456}}$	+	$\frac{\text{PRC0455}}{\text{PI-455}}$	=	_____	÷	(# Operable Channels used Normally 3)	=	PRESSURIZER PRESSURE
0900:	$\frac{\text{PRC0457}}{\text{PI-457}}$	+	$\frac{\text{PRC0456}}{\text{PI-456}}$	+	$\frac{\text{PRC0455}}{\text{PI-455}}$	=	_____	÷	(# Operable Channels used Normally 3)	=	PRESSURIZER PRESSURE
1500:	$\frac{2200}{\text{PI-457}}$	+	$\frac{2205}{\text{PI-456}}$	+	$\frac{\text{---}}{\text{PI-455}}$	=	4405	÷	2 (# Operable Channels used Normally 3)	=	2202.5 PRESSURIZER PRESSURE
2100:	$\frac{\text{PRC0457}}{\text{PI-457}}$	+	$\frac{\text{PRC0456}}{\text{PI-456}}$	+	$\frac{\text{PRC0455}}{\text{PI-455}}$	=	_____	÷	(# 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.

Attachment 4 - Daily Surveillance Requirements Log
Sheet 4 of 15

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	588.50	589.40	588.65	N/A	N/A	10
0900	588.50	589.42	588.80	N/A	N/A	10
1500	588.50	589.34	588.78	N/A	N/A	10
2100	588.49	589.38	588.61	N/A	N/A	10

INSTRUCTIONS

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

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

CALCULATIONS FOR RCS LOOP TAVG

0300:	$\frac{\text{TRC0412D}}{\text{TI-412D}}$	+	$\frac{\text{TRC0422D}}{\text{TI-422D}}$	+	$\frac{\text{TRC0432D}}{\text{TI-432D}}$	=	_____	÷	(# Operable Channels used Normally 3)	=	RCS LOOP TAVG
0900:	$\frac{\text{TRC0412D}}{\text{TI-412D}}$	+	$\frac{\text{TRC0422D}}{\text{TI-422D}}$	+	$\frac{\text{TRC0432D}}{\text{TI-432D}}$	=	_____	÷	(# Operable Channels used Normally 3)	=	RCS LOOP TAVG
1500:	$\frac{\text{TRC0412D}}{\text{TI-412D}}$	+	$\frac{\text{TRC0422D}}{\text{TI-422D}}$	+	$\frac{\text{TRC0432D}}{\text{TI-432D}}$	=	_____	÷	(# Operable Channels used Normally 3)	=	RCS LOOP TAVG
2100:	$\frac{\text{TRC0412D}}{\text{TI-412D}}$	+	$\frac{\text{TRC0422D}}{\text{TI-422D}}$	+	$\frac{\text{TRC0432D}}{\text{TI-432D}}$	=	_____	÷	(# 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.

Attachment 4 - Daily Surveillance Requirements Log
Sheet 5 of 15

TECH SPEC	4.3.2.1		4.4.6.2.1.e	4.3.1.1.7, 8		
PARAMETER	RCS PRESSURE		FLANGE LEAKOFF TEMP	OTAT	OPAT	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	<i>jo</i>	<i>jo</i>	93	<i>jo</i>	<i>jo</i>	<i>jo</i>
0900	<i>jo</i>	<i>jo</i>		<i>jo</i>	<i>jo</i>	<i>jo</i>
1500	<i>jo</i>	<i>jo</i>	94	<i>jo</i>	<i>jo</i>	<i>jo</i>
2100	<i>jo</i>	<i>jo</i>		<i>jo</i>	<i>jo</i>	<i>jo</i>

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	100.16	100.23	99.83	100.29	100.21	100.69	99.93	99.87	99.93
0900	100.08	100.10	99.90	99.98	100.14	100.36	99.91	99.92	99.96
1500	100.18	99.8	100.04	99.17	99.95	100.17	100.16	99.85	99.93
2100	100.16	98.9	99.90	98.13	100.05	100.38	100.48	100.28	100.12

TECH SPEC	4.3.1.1.2.a	4.4.6.2.1.d
PARAMETER INSTRUMENT	OST-1000 or OST-1004 or OST-1204	OST-1026 or OST-1226
ACCEPTANCE CRITERIA	COMPLETED	COMPLETED (Typically on Night Shift)
MODE	1 above 15% Power	1, 2, 3, and 4
0300	<i>jo</i>	Date/Time <u>TODAY 10011</u> (THURSDAY)

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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										
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							N/A	N/A
0900							N/A	N/A
1500							N/A	N/A
2100							N/A	N/A

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										
0900										
1500										
2100										

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




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	JO	JO	JO	85	84
0900	JO	JO	JO	80	79
1500	JO	JO	JO	72	71
2100	JO	JO	JO	61	60

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	N/A			→
0900	N/A			→
1500	N/A			→
2100	N/A			→

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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 ($\leq 116^{\circ}\text{F}$) 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			93.51	91	94	-0.4	-0.4	71	72
0900				90	93	-0.4	-0.4	71	72
1500			93.72	91	94	-0.4	-0.4	71	72
2100				91	94	-0.4	-0.4	71	72

TECH SPEC			PLP-114				
PARAMETER	FHB EMER EXH AREA		ROD CNTRL CAB AREA 305	STEAM TUNNEL	SA ELECT PENET AREA 261	SB ELECT PENET 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	64	63	60	60	60	60	60
0900	62	61	62	62	62	62	62
1500	64	63	62	62	62	62	62
2100	67	64	60	60	60	60	60

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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							
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								
0900								N/A
1500								
2100								

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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	PO	PO	PO	PO
0900	PO	PO	PO	PO
1500	PO	PO	PO	PO
2100	PO	PO	PO	PO

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	72	80	85	86	102.08	112.08
0900	71	83	84	85	101.56	114.24
1500	72	83	86	85	111.79	116.49
2100	73	85	85	87	112.93	121.20

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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 OP-163.

INSTRUCTION

- Due to a 3°F instrument inaccuracy associated with the permanently installed reservoir TSWs, if TSW9114/TSW9115 indicate $\geq 91^{\circ}\text{F}$, obtain local temperature readings per OP-163.

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	57.6	251.6	251.59	46.05	218.55	218.61	46.0
0900							
1500	57.5	251.5	251.59	46.32	218.56	218.63	45.7
2100							

INSTRUCTION

- 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).
- 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	N/A
2100	

Attachment 4 - Daily Surveillance Requirements Log
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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.

NOTE 1: 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.

NOTE 1: 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. OP-182 contains guidance for resetting the CPU FAILED light if lit.
(Reference 2.6.4)

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				
MODE	AT ALL TIMES												1, 2		
0300	0.46	PO	12.32	PO	328.83	PO	19.81	PO	11.68	PO	11.55	PO	PO		
0900															
1500	6.24	D	14.38	D	68.22	D	69.93	D	-1.89	D	-1.71	D	D		
2100															

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LOCAL TEMPERATURES

TECH SPEC	PLP-114				
PARAMETER	SFP PUMP & HX ROOM	TANK AREA 236	E-6 ROOMS 261		
			A-SA	B-SB	
INSTRUMENT	LOCAL THERMOMETER				
ACCEPTANCE CRITERIA	LESS THAN OR EQUAL TO 115.5 °F	LESS THAN OR EQUAL TO 104 °F			VERIFIED
MODE	AT ALL TIMES	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE			
0100-0400	57.5	66.4	67.3	64.8	JO
1300-1600	58.3	66.4	68.6	64.9	D

TECH SPEC	PLP-114					
PARAMETER	EDG HVAC ROOM 280		EDG HVAC ROOM 292		DFOST BLDG 242	
	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	VERIFIED
MODE	WHEN THE EQUIPMENT IN THE AFFECTED AREA IS REQUIRED TO BE OPERABLE					
0100-0400	76.4	83.0	75.7	81.3	57.4	JO
1300-1600	78.5	84.2	78.3	80.6	61.4	D

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
LOCAL TEMPERATURES

INSTRUCTION

1. If battery room temperature is less than 71°F, perform Step 7.0.5.

TECH SPEC		PLP-114					
PARAMETER	ELECT PENETRATION AREA 286		SWITCHGEAR ROOM 286		BATTERY ROOM 286		ACP 286
	A-SA	B-SB	A-SA	B-SB	A-SA	B-SB	
INSTRUMENT	LOCAL THERMOMETER						
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 90°F
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE						
0900-1200	62.6	74.6	81.9	77.9	76.3	76.8	77.7
2100-2400	62.9	74.6	81.3	78.1	75.8	76.9	77.6

TECH SPEC	PLP-114			
PARAMETER	AUX TRANSFER PANEL ROOM 286		PIC ROOMS 286	
	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	
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE			
0900-1200	72.7	72.2	76.6	75.0
2100-2400	72.7	72.2	76.8	74.7

VERIFIED



VERIFIED

TECH SPEC	PLP-114		
PARAMETER	PIC ROOM 305	ARP ROOM 305	AH-15 VENTILATION ROOM
INSTRUMENT	LOCAL THERMOMETER		
ACCEPTANCE CRITERIA	LESS THAN OR EQUAL TO 85°F		LESS THAN OR EQUAL TO 104°F
MODE	WHENEVER THE EQUIPMENT IN AN AFFECTED AREA IS REQUIRED TO BE OPERABLE		
0900-1200	71.0	66.5	60.1
2100-2400	70.8	66.7	60.0

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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				
1300-1600 (NOTE 1)	N/A				

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					
1300-1600 (NOTE 1)	N/A					

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					
1300-1600 (NOTE 1)	N/A					

Facility: HARRIS Task No.: 015004H201
Task Title: Perform the Quadrant Power Tilt Ratio Surveillance JPM No.: 2008 NRC RO A2
K/A Reference: 2.2.12 (3.4)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X
Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

- Initial Conditions:
- The plant has been stabilized at 100% power following a dropped rod in Control Bank "B" (M-6).
 - The crew is performing AOP-001, MALFUNCTION OF ROD CONTROL AND INDICATION SYSTEM.
 - No deficiency tags on PRNIs.

Task Standard: Calculations within required band.

Required Materials: Calculator

General References: OST-1039, CALCULATION OF QPTR, Revision 13

- Handouts:
- OST-1039
 - Curve Book (Ensure F-X-8 included and unmarked)

Initiating Cue: The USCO has directed you to perform a manual QPTR IAW OST-1039, CALCULATION OF QPTR. The Power Range NIS readings are provided in the table below.

For the purposes of the examination, there will be no independent verification of your work.

Time Critical Task: NO

Validation Time: 12 minutes

(Denote Critical Steps with a √)

Start Time: _____.

Performance Step: 1 Obtain procedure.

Standard: Reviews procedure.

Evaluator Cue: Provide OST-1039.

Evaluator Note: A KEY is provided for your use on JPM Page 7.

Comment:

Performance Step: 2 Completes Prerequisites section:

- Instrumentation needed for the performance of this test is free of deficiency tags that affect instrument indication.
- Verify the most recent Curve F-X-8 is used in the performance of this procedure.
- Verify all prerequisites are met, then obtain Unit SCO permission to perform this OST.

Standard:

- Logs F-X-8 revision number (NRC Exam)
- Initials/signs all blocks

Evaluator Cue:

Comment:

-
- | | |
|----------------------------|--|
| Performance Step: 3 | <ul style="list-style-type: none">• If Quadrant Power Tilt Ratio Calculation Computer Program is used, perform Section 7.1, and N/A section 7.2.• If manual calculation of the Quadrant Power Tilt Ratio is used, perform Section 7.2, and N/A section 7.1. |
|----------------------------|--|

- | | |
|------------------|---|
| Standard: | <ul style="list-style-type: none">• Marks Section 7.1 N/A• Proceeds to Section 7.2 |
|------------------|---|

Comment:

-
- | | |
|----------------------------|---|
| Performance Step: 4 | Prior to reading the value of detector current, ensure the meter range/rate switch is in the 400 μ A/SLOW position. |
|----------------------------|---|

- | | |
|------------------|--|
| Standard: | Verifies meter range/rate switches were in the 400 μ A/SLOW position when the readings were taken. |
|------------------|--|

Evaluator Cue:

Comment:

-
- | | |
|----------------------------|---|
| Performance Step: 5 | Record on Attachment 2, in Column A, the upper and lower detector currents from all operable power range channels as read on the Nuclear Instrumentation Cabinet. |
|----------------------------|---|

- | | |
|------------------|--|
| Standard: | Transposes readings from PRNIS Readings Table onto Attachment 2. |
|------------------|--|

Comment:

Performance Step: 6 Record on Attachment 2, in Column B, the 100% power normalized current for each channel. (Refer to Curve F-X-8)

Standard: Transposes TOP and BOTTOM 100% current values from the Curve Book provided.

Evaluator Cue:

Comment:

Performance Step: 7 Divide values in Column A by the respective normalized current in Column B and record the result in Column C as the Normalized Fraction.

Standard: Divides each Upper and Lower reading by the respective 100% normalized current value and records in Column C.

Comment:

Performance Step: 8 Calculate the average value for the upper and the lower Normalized Fractions by adding the Normalized Fraction in each section of Column C and divide by the number of operable NI channels. Record in Column D of Attachment 2.

Standard: Adds all Normalized Fractions for the same plane, divides by four and records result in Column D.

Evaluator Note: On the KEY, this value is shown at the bottom of Column C.

Comment:

√	Performance Step: 9	Using the formula and values from Attachment 2 calculate the Upper and Lower Ratios.
	Standard:	<ul style="list-style-type: none">• Divides the Maximum Normalized Fraction by the Average Normalized Fraction on each plane.• Determines both UPPER and LOWER ≥ 1.029.
	Evaluator Note:	The applicant may inform the USCO as soon as any calculation is > 1.02. If so, acknowledge and direct applicant to complete.
	Comment:	
	Performance Step: 10	Perform independent verification of all calculations made on Attachment 2.
	Standard:	Requests Independent Verifier.
	Evaluator Cue:	If necessary, repeat Initiating Cue: For the purpose of this examination, there will be no independent verification of your work.
	Comment:	Candidate may choose to check calculations.
√	Performance Step: 11	The upper ratio or the lower ratio, whichever is greater, is the quadrant power tilt ratio (QPTR). Record QPTR and verify QPTR is less than or equal to 1.02.
	Standard:	Records Maximum QPTR value 1.026 to 1.036 (N44 UPPER)
	Comment:	Acceptable band is +/- 5% (rounded to .005) around 1.031.

-
- √ **Performance Step: 12** Complete applicable sections of Attachment 3, Certifications and Reviews and inform the Unit SCO when this test is completed.

Standard:

- Check marks Periodic Surveillance or notes AOP-001 in Comments section
- Plant Condition: 100% Power (may note dropped rod)
- Mode 1
- Today's Date
- Current Time
- OST Completed By: Applicant's name
- Initials/Name
- Indicate in General Comments Section and/or informs USCO that the limit is exceeded (√)

Evaluator Cue:**Acknowledge any report.****Comment:**

Terminating Cue:**After the USCO has been notified: Evaluation on this JPM is complete.**

KEY

	A	B	C
UPPER DETECTOR	UPPER DETECTOR CURRENT	UPPER 100% POWER NORMALIZED CURRENT	UPPER NORMALIZED FRACTION (NOTE 1)
N-41	149.7	155.2	.965
N-42	177.9	175.6	1.013
N-43	202.0	200.0	1.010
N-44	165.5	159.5	1.038
SUM			4.026/4 = 1.0065

	A	B	C
LOWER DETECTOR	LOWER DETECTOR CURRENT	LOWER 100% POWER NORMALIZED CURRENT	LOWER NORMALIZED FRACTION (NOTE 1)
N-41	169.2	176.1	.961
N-42	202.6	202.2	1.002
N-43	221.1	221.2	.9995
N-44	197.5	192.3	1.027
SUM			3.99/4 = .9975

Highest Upper (N-44) $1.038/1.0065 = 1.031$
Highest Lower (N-44) $1.027/.9975 = 1.0296$ (1.03)

Job Performance Measure No.: 2008 NRC RO A2

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

HARRIS 2008 NRC RO JPM A2
Curve F-X-8 HANDOUT
Revision Number: NRC Exam

NIS Current Setpoint Table
uA, 100% power

PRNIS Channel	TOP CURRENT	BOTTOM CURRENT
N41	155.2	176.1
N42	175.6	202.2
N43	200.0	221.2
N44	159.5	192.3

INITIAL CONDITIONS:

- The plant has been stabilized at 100% power following a dropped rod in Control Bank "B" (M-6).
- The crew is performing AOP-001, MALFUNCTION OF ROD CONTROL AND INDICATION SYSTEM.
- No deficiency tags on PRNIs.

INITIATING CUE:

The USCO has directed you to perform a manual QPTR IAW OST-1039, CALCULATION OF QPTR. The Power Range NIS readings are provided in the table below.

For the purposes of the examination, there will be no independent verification of your work.

PRNIS Readings

PRNIS Channel	UPPER READING	LOWER READING
N41	149.7	169.2
N42	177.9	202.6
N43	202.0	221.1
N44	165.5	197.5

* All values were taken with the Range/Rate switch in 400 μ A/Slow position.

Facility: HARRIS

Task No.:

Task Title: Review the Completed OST for
Auxiliary Feedwater Pump 1A-SAJPM No.: 2008 NRC SRO A2

K/A Reference: 2.2.12 (3.4)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: _____

Actual Performance: XClassroom X Simulator _____ Plant _____**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:

- The unit is in Mode 1 at 100% power
- All major controllers are in AUTO
- No TS Action Statements are in effect
- OST-1211, AUXILIARY FEEDWATER PUMP 1A-SA OPERABILITY TEST QUARTERLY INTERVAL MODES 1-4, has just been completed

Task Standard: All errors (4) identified

Required Materials: None

General References: OST-1211, AUXILIARY FEEDWATER PUMP 1A-SA OPERABILITY
TEST QUARTERLY INTERVAL MODES 1-4

Handout: Completed OST-1211 with the errors incorporated.

Initiating Cue: You are the USCO. Completely review the procedure and note any problems in the GENERAL COMMENTS section of Attachment 6 – Certification and Review. Discuss your review with me at the conclusion.

Time Critical Task: No

Validation Time: 12 minutes

SIMULATOR SETUP

N/A

(Denote Critical Steps with a check mark)

START TIME: _____

Performance Step: 1 Review procedure

Standard: Ensures proper conditions, signatures/initials, and may verify the current revision of the procedure

Evaluator Cue: • **Provide the completed OST-1211.**

Comment:

√ **Performance Step: 2** Review the completed OST

Standard: Attachment 1 (Page 16) – Identifies stopwatch is past calibration date

Evaluator Note: **This makes the OST invalid and/or any timed elements would have to be repeated.**

Comment:

PERFORMANCE INFORMATION

√	Performance Step: 3	Review the completed OST
Standard:	<ul style="list-style-type: none">• Attachment 2, Sheet 1 (Page 17) – wrong Specific Volume used to determine ΔP_{corr}.	
Evaluator Note:	ΔP_{corr} still exceeds minimum requirement but is incorrect.	
Comment:		

√	Performance Step: 4	Review the completed OST
Standard:	<ul style="list-style-type: none">• Attachment 3 (Page 20) – Outboard Horizontal Vibration reading is in the ALERT range but there is no documentation in accordance with Instructions 1.a and 1.b.	
Evaluator Note:	The pump would still be operable but this could prevent corrective action or the required increase in surveillance frequency.	
Comment:		

√	Performance Step: 5	Review the completed OST
Standard:	Attachment 4 (Page 21) – 1AF-74 SHUT time exceeds CODE CRITERIA and, in accordance with Step 7.0.1, should have been retested immediately.	
Comment:		

PERFORMANCE INFORMATION

Performance Step: 6 Review the completed OST

Standard: Returns the procedure unsigned or, if signed, with EXCEPTIONS circled and all errors identified in the GENERAL COMMENTS section.

Comment:

Terminating Cue: **When the procedure is returned: Evaluation on this JPM is complete.**

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2008 NRC SRO A2

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS:

- The unit is in Mode 1 at 100% power
- All major controllers are in AUTO
- No TS Action Statements are in effect
- OST-1211, AUXILIARY FEEDWATER PUMP 1A-SA OPERABILITY TEST QUARTERLY INTERVAL MODES 1-4, has just been completed

INITIATING CUE:

You are the USCO. Completely review the procedure and note any problems in the GENERAL COMMENTS section of Attachment 6 – Certification and Review. Discuss your review with me at the conclusion.

HARRIS NUCLEAR PLANT

PLANT OPERATING MANUAL

VOLUME 3

PART 9

PROCEDURE TYPE: OPERATIONS SURVEILLANCE TEST

NUMBER: **OST-1211**

TITLE: **AUXILIARY FEEDWATER PUMP 1A-SA
OPERABILITY TEST
QUARTERLY INTERVAL
MODES 1 - 4**

NOTE: This procedure has been screened per PLP-100 Criteria and determined to be CASE III. No additional management involvement is required.

Attachment 1 - Calibration Data Sheet
Sheet 1 of 1

Inst/Model Description	Inst ID Number	Cal Due Date
Vibrometer	CT 1986	08 -27-08
0 to 50 PSIG Test Gauge	CT 1895	07-10-08
0 to 2500 PSIG Test Gauge	CT 057	09-11-08
Stopwatch	UTC 1650259	12-13-07
Hand held Pyrometer	N/A	→
Differential Pressure Gauge, 0 to 100 inwc accuracy of ± 1.0 inch	CT 2309	11-08-09

OUT OF
CAL

Attachment 2 - Performance Data

Sheet 1 of 3

Auxiliary Feedwater Pump 1A-SA

NOTE 1: Calculate Differential Pressure as follows:

$$\frac{1620}{\text{Step 7.1.21}} - \frac{25.8}{\text{Step 7.1.18}} = \frac{1594.2}{\text{Step 7.1.23}} \text{ psid}$$

NOTE 2: Satisfactory Acceptance Criteria is determined by using the following equation and verifying the corrected differential pressure is within the acceptance criteria.

$$\frac{1602.4}{\Delta P_{\text{corr}}} = 62.31 \times \frac{1594.2}{\Delta P_{\text{ind}}} \times \frac{.016131}{u_f}$$

WRONG
VALUE

ΔP_{corr} = Corrected Differential Pressure

ΔP_{ind} = Indicated Discharge Pressure minus Indicated Suction Pressure

u_f = Specific Volume (ft³/lbm) for saturated liquid water (u_f) for suction temperature recorded in Step 7.1.22. This number can be determined from Sheet 3 of this Attachment or Standard Steam Tables.

Step	Component Tested	Acceptance Criteria	Sat/Unsat (circle one)
7.1.5	1AF-201 and 1AF-54 stroke close.	TAF2007A < 135°F	<u>SAT</u> / UNSAT
7.1.5	1AF-202 and 1AF-92 stroke close.	TAF2007C < 135°F	<u>SAT</u> / UNSAT
7.1.5	1AF-203 and 1AF-73 stroke close.	TAF2007E < 135°F	<u>SAT</u> / UNSAT
7.1.24	1CE-36 Stroke Open	50 to 54 inwc	<u>SAT</u> / UNSAT
7.1.24	1AF-4 Full Stroke Open	≥ 50 inwc	<u>SAT</u> / UNSAT
7.1.24	1AF-110 Stroke Closed	≥ 50 inwc	<u>SAT</u> / UNSAT
7.1.24	1AF-23 Stroke Closed	≥ 50 inwc	<u>SAT</u> / UNSAT

Attachment 2 - Performance Data

Sheet 2 of 3

INSTRUCTIONS

1. If pump hydraulic data does not meet acceptance criteria:
 - a. Declare the pump INOPERABLE.
 - b. Initiate a CR.

STEP NO.	PARAMETER	INSTRUMENT	READING	ACCEPTANCE CRITERIA
7.1.3	Idle Suction Pressure	Test Gauge at 1CE-42-V2	26.2 psig	≥ 15 psig
7.1.18	Operating Suction Pressure	Test Gauge at 1CE-42-V2	25.8 psig	≥ 15 psig
7.1.20	Discharge Pressure	Test Gauge at 1AF-11-HV2	1620 psig	N/A
7.1.22	Suction Temperature	ERFIS Point TCE9010 or Handheld Pyrometer*	79 °F	N/A
7.1.23	Recirculation Flow (Local Flow Gauge)	Test Gauge at 1AF-7	52 inwc	50 to 54 inwc ***
7.1.25	Differential Pressure	Calculated per NOTE 1	1594.2 PSID	N/A
7.1.26	Differential Pressure	Calculated per NOTE 2 (Corrected (ΔP_{corr}))	1602.4 PSID	≥ 1528 psid and ≤ 1763.96 psid

* Circle instrument used.

** 50 to 54 inches water column is equivalent to 50 to 52 gpm

Attachment 2 - Performance Data
Sheet 3 of 3

Specific Volume (ft³/lbm) For Saturated Liquid Water (v_f)

Temperature	Specific Volume	Temperature	Specific Volume	Temperature	Specific Volume
59	0.016034	80	0.016074	101	0.016135
60	0.016035	81	0.016076	102	0.016138
61	0.016036	82	0.016079	103	0.016141
62	0.016038	83	0.016081	104	0.016145
63	0.016039	84	0.016084	105	0.016148
64	0.016041	85	0.016086	106	0.016152
65	0.016043	86	0.016089	107	0.016155
66	0.016044	87	0.016092	108	0.016159
67	0.016046	88	0.016095	109	0.016163
68	0.016048	89	0.016097	110	0.016166
69	0.016050	90	0.016100	111	0.016170
70	0.016052	91	0.016103	112	0.016174
71	0.016054	92	0.016106	113	0.016177
72	0.016056	93	0.016109	114	0.016181
73	0.016058	94	0.016112	115	0.016185
74	0.016060	95	0.016115	116	0.016189
75	0.016062	96	0.016118	117	0.016193
76	0.016064	97	0.016122	118	0.016197
77	0.016067	98	0.016125	119	0.016201
78	0.016069	99	0.016128	120	0.016205
79	0.016071	100	0.016131	121	0.016209

Attachment 3 - Vibration Data
Sheet 1 of 1

INSTRUCTIONS:

1. If pump vibration data is greater than the Acceptable Range but within the Alert Range:
 - a. Prepare an E-mail or Memo to the Surveillance Testing Scheduling Coordinator directing the test frequency of the pump to be doubled.
 - b. Attach a copy of the E-mail or Memo to the test package.









2. If pump vibration data meets the Required Action Criteria:
 - a. Declare the pump INOPERABLE.
 - b. Initiate a Condition Report (CR).

Auxiliary Feedwater Pump 1A-SA

Vibration Location	IN/SEC	ACCEPTANCE CRITERIA		
		Acceptable Range	Alert Range	Required Action
Axial	.112	≤ 0.285	> 0.285 to ≤ 0.684	> 0.684
Outboard Horizontal	.243	≤ 0.2325	> 0.2325 to ≤ 0.558	> 0.558
Outboard Vertical	.152	≤ 0.2775	> 0.2775 to ≤ 0.666	> 0.666
Inboard Horizontal	.091	≤ 0.265	> 0.265 to ≤ 0.636	> 0.636
Inboard Vertical	.126	≤ 0.315	> 0.315 to ≤ 0.70	> 0.70

NOTES a. & b. Apply

Attachment 4 - Valve Test Data
Sheet 1 of 1

PRETEST ALIGNMENT			FULL STROKE TEST			FAIL SAFE TEST		POSTTEST ALIGNMENT			ACCEPTANCE CRITERIA (SEC)					
Valve Number	Pretest Position	Init	Verification of Travel by Ind Lights (INIT)	Stroke Time (SEC)		Fail Safe Position	Position Verified	Posttest Position	Pos Init	Verf Init	CODE CRITERIA				LIMITING VALUE	
				OPEN	SHUT						OPEN		SHUT			
											Low	High	Low	High	OPEN	SHUT
1AF-55	Open			16.86	16.96	N/A	N/A	Open			14.25	19.28	14.34	19.40	25.15	23.00
1AF-74	Open			20.31	20.12	N/A	N/A	Open			15.48	20.94	14.84	20.07	27.31	23.00

1 OUTSIDE OF CODE CRITERIA

Comments: _____

Attachment 5 - Valve Retest Data Sheet
Sheet 1 of 2

NOTE: This entire Attachment is N/A if no valve is retested due to exceeding the Code Criteria.

Determine if the stroke time exceeds the Limiting Value.

1. If the stroke time exceeds the Limiting Value, declare the valve inoperable and initiate a CR. (N/A if stroke time is less than the Limiting Value)
2. If the stroke time is less than the Limiting Value, but outside the Code Criteria limits, perform the following Steps:
 - a. If the cause is known to be mechanical failure, or if a retest cannot be performed expeditiously, declare the valve inoperable and initiate a CR(Except PMTRs).
 - b. If retesting the valve is desired, perform the following:

NOTE: If necessary, separate marked up sheets of this OST may be used to document necessary manipulations. These sheets would be attached to this procedure and noted in the comments Section of Attachment 7.

- (1) Determine which Steps need to be performed to set up conditions for testing the valve. Unit SCO concurrence must be obtained and documented in the Comments section of Attachment 7.
- (2) Perform the Steps determined in the previous Step and document stroke times/valve positioning on Sheet 2.
- (3) If retest results are still outside the Code Criteria, declare the valve inoperable and initiate a CR (except PMT).
- (4) If retest results are within the Code Criteria, perform the following:
 - (a) Declare the valve operable.
 - (b) Initiate a CR identifying test findings for the first and second tests.
 - (c) Send test results to Responsible Engineer (IST) for evaluation and documentation on the CR.

Attachment 5 - Valve Retest Data Sheet
Sheet 2 of 2

- (1) Fill out PRETEST ALIGNMENT, POSTTEST ALIGNMENT, and ACCEPTANCE CRITERIA values for the valve(s) being tested using the values in the initial test Attachment.

PRETEST ALIGNMENT (1)			FULL STROKE TEST		POSTTEST ALIGNMENT (1)			ACCEPTANCE CRITERIA (SEC) (1)					
Valve Number	Pretest Position	Init	Stroke Time (SEC)		Posttest Position	Pos Init	Verf Init	CODE CRITERIA				LIMITING VALUE	
			OPEN	SHUT				OPEN		SHUT			
								Low	High	Low	High	OPEN	SHUT

Attachment 6 - Certification and Review
Sheet 1 of 2

This OST was performed as a:

Periodic Surveillance Requirement: ✓

Postmaintenance Operability Test: _____

Redundant Subsystem Test: _____

Plant Conditions: NOP/NOT Mode: 1

OST Completed By: _____ Date: TODAY

Time: 10:30

OST Performed By:

Initials	Name (Print)	Initials	Name (Print)
		JO	J. DOE
		D	D. SMITH

General Comments/Recommendation/Corrective Actions/Exceptions:

Attachment 6 - Certifications and Reviews
Sheet 2 of 2

Step 7.1.11	1A-SA AFW Pump Inoperable	Time: <u>0905</u>	Date: <u>TODAY</u>
Step 7.1.32	1A-SA AFW Pump Operable	Time: <u>0941</u>	Date: <u>TODAY</u>
Step 7.2.1.c	1A-SA and 1B-SB AFW Pump Inoperable	Time: <u>1015</u>	Date: <u>TODAY</u>
Step 7.2.1.p	1A-SA and 1B-SB AFW Pump Operable	Time: <u>1025</u>	Date: <u>TODAY</u>

Pages Used: A11

OST Completed with NO EXCEPTIONS/EXCEPTIONS:

Reviewed By: _____ Date: _____

Unit SCO

Reviewed By: _____ Date: _____
Responsible Engineer (IST)

Reviewed By: ANII Date: _____

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

Revision Summary

General

Revision 16 updates the procedure reference to the new IST Program Plan.

Description of Changes

<u>Page</u>	<u>Section</u>	<u>Change Description</u>
All	All	Updated revision level.
3	1.0.2	Added check valves 1AF-23, 54, 92, 110, and 73.
3	1.0.4	Deleted.
5	2.7.4	HNP-IST-003, HNP IST Program Plan – 3rd Interval.
8	6.0.1.e.(1)	Changed acceptance criteria per calc. (Also changed on Attachment 2)
8	6.0.1.b	Deleted "Partial" stroke
8	6.0.1.c	Added check valves 1AF-23, 54, 92, 110, and 73.
9	7.1.5	Added check valves 1AF-54, 92, and 73.
11	7.1.24	Added check valve 1AF-23, 110
17	Attachment 2	Added check valves 1AF-23, 54, 92, 110, and 73.

Facility: HARRIS

Task No.:

Task Title: Given a Declared Emergency,
Determine the Dose Rate, Dose
Limit, and the Number of People to
Perform a Task.JPM No.: 2008 NRC RO-SRO A3

K/A Reference: 2.3.4 (2.5/3.1)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: _____

Actual Performance: X Classroom X Simulator _____ Plant _____***Perform in a location with the general references available or with electronic access to the references.*****READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:

- A large break LOCA has occurred.
- The ECCS is in cold leg recirculation.
- RHR Pump "B" is running. RHR Pump "A" showed evidence of gas binding and was stopped.
- A Site Area Emergency (SAE) is in effect.
- The Emergency Engineering Organization has determined that the RHR Pump "A" should be vented to ensure that a backup is available.
- The general radiation level in the area is 16 R/hour
- The OSC estimates that the total task will take .75 man-hours.
- The Site Emergency Coordinator has specified that he/she will not authorize an extension to the site emergency workers dose limit for performance of this task.

Task Standard: Number of people and stay times calculated within specified limits.

Required Materials: Calculator

- General References:
- PEP-330, RADIOLOGICAL CONSEQUENCES
 - NGGM-PM-0002, RADIATION CONTROL AND PROTECTION MANUAL

Initiating Cue: The site emergency workers listed in the table below are available. They will be utilized from lowest to highest accumulated TEDE dose.

Using the minimum number of workers possible, DETERMINE:

- the total number of workers required to perform the task and
- the maximum stay time for each individual who will be utilized.

Assume no dose in transit and round off to the nearest minute below the limit.

Time Critical Task: NO

Validation Time:

SIMULATOR SETUP

N/A

PERFORMANCE INFORMATION

(Denote Critical Steps with a check mark)

START TIME: _____

Performance Step: 1 Determine total estimated dose for the task.

Standard: 16 R/hour x .75 hours = 12 Rem

Comment:

Performance Step: 2 Determine the dose limit for site emergency workers

Standard: Per PEP-330 – Attachment 1: 5 Rem

Comment:

✓ **Performance Step: 3** Determine the number of people required

Standard: Workers A, B, and C would have to be used (✓) to reach the 12 Rem total estimated dose ($4700 + 4450 + 4300 = 13.45$)

Comment:

PERFORMANCE INFORMATION

√ **Performance Step: 4** Stay Time for Workers

Standard: A: $4.7/16 \times 60$ minutes = 17 minutes
B: $4.55/16 \times 60$ minutes = 17 minutes
C: $4.30/16 \times 60$ minutes = 16 minutes

Comment:

Terminating Cue: After the maximum stay time for the workers to be used is calculated: Evaluation on this JPM is complete.

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2008 NRC RO-SRO A3

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS:

- A large break LOCA has occurred.
- The ECCS is in cold leg recirculation.
- RHR Pump "B" is running. RHR Pump "A" showed evidence of gas binding and was stopped.
- A Site Area Emergency (SAE) is in effect.
- The Emergency Engineering Organization has determined that the RHR Pump "A" should be vented to ensure that a backup is available.
- The general radiation level in the area is 16 R/hour
- The OSC estimates that the total task will take .75 man-hours.
- The Site Emergency Coordinator has specified that he/she will not authorize an extension to the site emergency workers dose limit for performance of this task.

INITIATING CUE:

The site emergency workers listed in the table below are available. They will be utilized from lowest to highest accumulated TEDE dose.

Using the minimum number of workers possible, DETERMINE:

- the total number of workers required to perform the task and
- the maximum stay time for each individual who will be utilized.

Assume no dose in transit and round off to the nearest minute below the limit.

Site Emergency Worker	Accumulated TEDE Dose This Year
A	300 mr
B	450 mr
C	700 mr
D	800 mr
E	850 mr
F	1000 mr
G	1050 mr
H	1150 mr
I	1200 mr
J	1300 mr
K	1500 mr
L	1650 mr

Facility: HARRIS Task No.: 345001H602

Task Title: Evaluate a Change in Conditions on an Existing EAL JPM No.: 2008 NRC JPM SRO A4

K/A Reference: 2.4.41 (4.1)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing: **This JPM can be performed in any setting with the required references available.**

Simulated Performance: _____ Actual Performance: X

Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: See Plant Conditions handout.

Task Standard: Upgrade EAL to GE and correct PAR within required time.

Required Materials: None

General References:

- PEP-110, EMERGENCY CLASSIFICATION AND PROTECTIVE ACTION RECOMMENDATIONS, Rev. 16
- PEP-230, CONTROL ROOM OPERATIONS, Rev.14
- PEP-310, NOTIFICATIONS AND COMMUNICATIONS, Rev. 21

Handouts:

- Attached Initial Conditions
- EAL Flowcharts
- PEP-110
- PEP-310
- EP/EAL Guidelines
- PEP-230, Attachment 1 – SITE EMERGENCY COORDINATOR

Initiating Cue: You are the Site Emergency Coordinator. Review the plant conditions handout sheet and determine the current Emergency Action Level (EAL). This is a time critical JPM. The clock starts after you have reviewed the Plant Conditions sheet.

Time Critical Task: YES – 15 minutes to classify then 15 more minutes to make the PAR.

Validation Time: 10 minutes to classify, 12 minutes for PAR/Emergency Notification Form.

(Denote Critical Steps with a √)

Start Time: _____.

Performance Step: 1 Evaluate changing conditions.

Standard: Compares conditions against EAL Flowchart criteria.

Evaluator Cue:

- **Provide Initial Conditions sheet (last page of JPM).**
- **Provide reference materials if not available in the JPM performance location.**

Comment: **Classification Start Time** _____.

√ **Performance Step: 2** Determine EAL.

Standard: Upgrade to GE (2-1-4) required:

- RCS Breached
- Fuel Breached – DEI sample > 300 uCi/cc
- CNMT Jeopardized – Pressure > 3 PSIG

Evaluator Note:

- **It may be necessary to cue the PAR performance. The facility normally splits the EAL and the PAR into two JPM's.**
- **If the applicant incorrectly classifies then skip to the Evaluator Cue in Performance Step 3.**

Comment: **Classification End Time/PAR Start Time** _____.

√ **Performance Step: 3** Determine PAR (PEP-230, Attachment 1, Step 10).

Standard: Refers to PEP-110, Attachment 3:
PROTECTIVE ACTION RECOMMENDATION:

- EVACUATE: 2 mile radius
- EVACUATE: Subzones A, B, L
- SHELTER: Subzones C, D, E, F, G, H, I, J, K, M, N

Evaluator Cue: The computer program is not available. Hand write a paper copy of the Manual Notification Form in accordance with PEP-230, Attachment 1, Step 11.b.

Comment:

√ **Performance Step: 4** Complete the ENF.

Standard: Critical Elements:

- Block 4: GE
- Block 4 EAL: 2-1-4
- Block 5 PAR: Evacuate 2 mile radius and Subzones A, B, L; Shelter Subzones C, D, E, F, G, H, I, J, K, M, N
- Block 6 Emergency Release: Is Occurring
- Block 9 Wind Direction from: 126°
- Block 10: DECLARATION; Current TIME; Current DATE
- Block 17: Applicant signature/Title/Current Time/ Current Date
- Provide form to Communicator

Evaluator Note: An ENF KEY is attached.

Comment: PAR Notification End Time _____.

Terminating Cue: After the ENF is handed to the communicator: Evaluation on this JPM is complete.

Job Performance Measure No.: 2008 NRC JPM SRO A4

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS: See Plant Conditions handout.

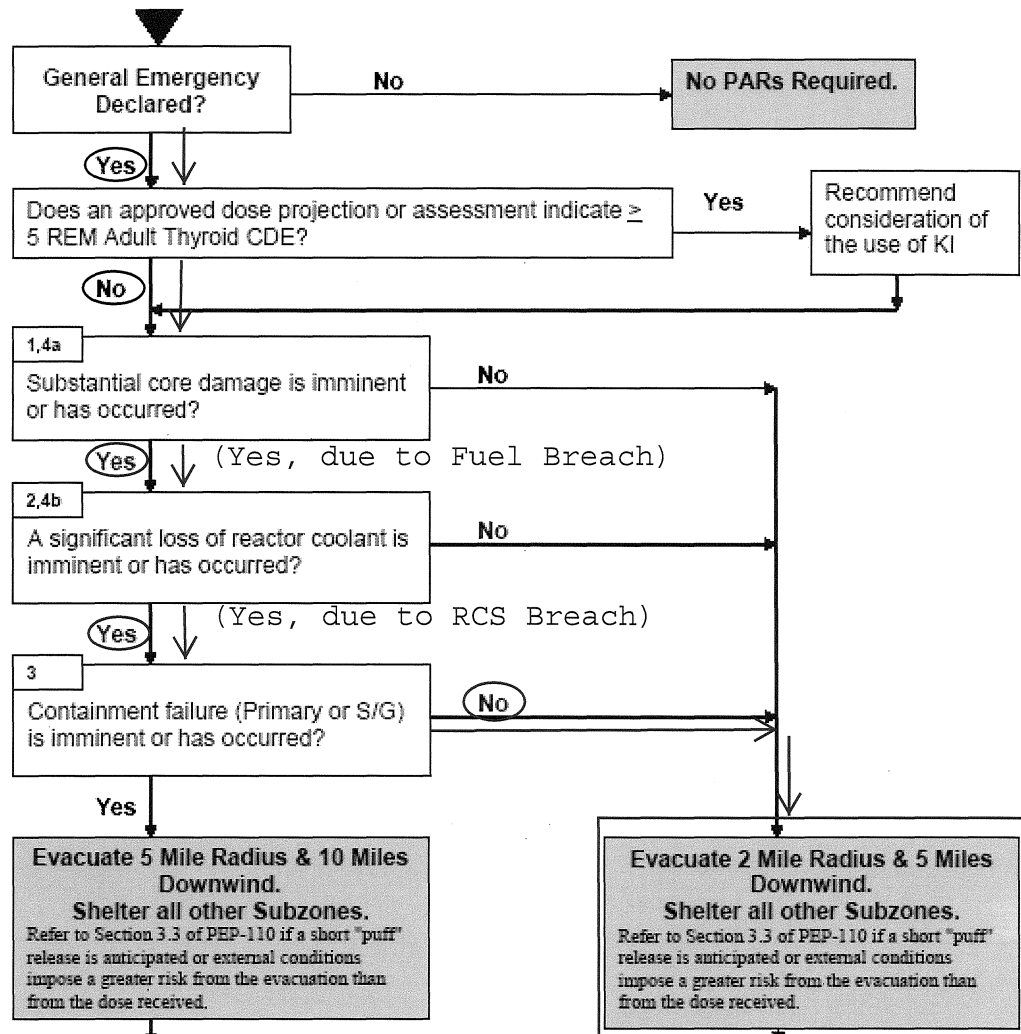
INITIATING CUE: You are the Site Emergency Coordinator. Review the plant conditions handout sheet and determine the current Emergency Action Level (EAL). This is a time critical JPM. The clock starts after you have reviewed the Plant Conditions sheet.

2008 NRC JPM SRO A4 Plant Conditions

- Increasing RCS leakage required a MANUAL Reactor Trip and Safety Injection
- The TDAFW Pump is cleared and tagged
- The RCS leak escalated to a large-break LOCA while the crew was performing PATH-1
- Containment Spray actuated
- There is a RED CSF on INTEGRITY
- The EAL Network was entered at Point X
- A Site Area Emergency (SAE) is in effect with the RCS breached (EAL 2-1-3) and Containment jeopardized
- Outside temperature is 62 °F
- Thunderstorms are moving into the area
- The wind is blowing at 12 MPH from 126 degrees
- Since the SAE declaration, the following has occurred:
 - Plant computers are down which will require any additional notifications to be done using a manual notification form
 - Off-site power was lost and EDG 1B failed while starting
 - ECCS cold leg recirculation alignment on Train "A" was just completed
 - Containment Pressure is 3.8 PSIG, lowering slowly
 - Containment Area Radiation Monitors are in HIGH alarm, rising slowly
 - Containment High Range Monitors are rising but not in alarm
 - Plant Vent Stack #1 Monitor is rising slowly but not in alarm
 - Charging Pump "A" Room Monitor went into HIGH alarm after cold leg recirculation was initiated
 - Chemistry has analyzed a sample and reports an Iodine Dose Equivalent RCS concentration of 410 uCi/cc

KEY

Attachment 3 - PROTECTIVE ACTION RECOMMENDATION PROCESS Sheet 1 of 2



5 Mile Radius, 10 Miles Downwind

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

2 Mile Radius 5 Miles Downwind

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

KEY

Attachment 3 - PROTECTIVE ACTION RECOMMENDATION PROCESS

Sheet 2 of 2

Acceptable changes in initial PARS would include expanding evacuation but would not allow a change from evacuation of zones to sheltering of those zones.

1. Indications that substantial core damage is imminent or has occurred include:
 - a) Core damage > 1% melt.
 - b) Core Exit Thermocouple readings $\geq 2300^{\circ}\text{F}$.
 - 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 are indicated by:
 - a) A release of radioactivity greater than the projected dose of either:
 - 1000 mRem TEDE at or beyond the site boundary.
 - 5000 mRem Thyroid CDE at or beyond the site boundary.Or a measured dose rate of either:
 - >1000 mRem/hr at or beyond the site boundary.
 - I-131 equivalent concentration > 3.9 E-6 $\mu\text{Ci/cc}$ at or beyond the site boundary.
 - b) Primary containment pressure can not be maintained below design basis pressure of 45 psig.
 - c) Primary containment H_2 gas concentration can not be maintained below combustible limit of 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 will most likely be thyroid dose limiting. For a faulted and ruptured S/G, water level must be below the tube bundles (S/G Narrow Range < 25% normal containment conditions or < 40% adverse containment conditions) with a relief valve open before it is considered a direct release pathway to the environment. For circumstances involving a direct release pathway to the environment:

- 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.

NOTE: A direct release is defined as a pathway from the containment to any environment outside the containment when containment or system isolation is required due to a safety injection signal, containment pressure greater than 3 psig, or a valid containment ventilation isolation signal and the pathway cannot be isolated from the Main Control Room.

Containment monitors can provide indication of both core damage and RCS breach. Monitor readings used to quantify an amount of damage or coolant leakage should be complimented by other indications and engineering judgment.

If a release is in progress:

- 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.

If no release is in progress:

- 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.

KEY

Attachment 9 - NUCLEAR POWER PLANT EMERGENCY NOTIFICATION FORM Sheet 1 of 1

1. ☒ DRILL ☒ ACTUAL EVENT MESSAGE # _____
2. ☒ INITIAL ☒ FOLLOW-UP NOTIFICATION: TIME Now DATE Today / / AUTHENTICATION # _____
3. SITE: HNP Confirmation Phone # () _____

4. EMERGENCY CLASSIFICATION: ☒ UNUSUAL EVENT ☒ ALERT ☒ SITE AREA EMERGENCY ☒ GENERAL EMERGENCY

BASED ON EAL # 2-1-4 EAL DESCRIPTION: 3 FPBs Breached/Jeopardized

5. PROTECTIVE ACTION RECOMMENDATIONS: ☒ NONE
- ☒ EVACUATE 2 mile radius and Subzones A,B,L
- ☒ SHELTER Subzones C,D,E,F,G,H,I,J,K,M,N
- ☒ CONSIDER THE USE OF KI (POTASSIUM IODIDE) IN ACCORDANCE WITH STATE PLANS AND POLICY.
- ☒ OTHER _____

6. EMERGENCY RELEASE: ☒ None ☒ Is Occurring ☒ Has Occurred

7. RELEASE SIGNIFICANCE: ☒ Not applicable ☒ Within normal operating limits ☒ Above normal operating limits ☒ Under evaluation
8. EVENT PROGNOSIS: ☒ Improving ☒ Stable ☒ Degrading
9. METEOROLOGICAL DATA: Wind Direction* from 126 degrees Wind Speed* 12 mph

(*Not Required for Initial Notifications) Precipitation* _____ Stability Class* ☒ A ☒ B ☒ C ☒ D ☒ E ☒ F ☒ G

10. ☒ DECLARATION ☒ TERMINATION Time _____ Date _____ / _____ / _____
(Enters Current Date and Time)

11. AFFECTED UNIT(S): ☒ 2 ☒ 3 ☒ All
12. UNIT STATUS:
(Unaffected Unit(s) Status Not Required for Initial Notifications)

☒ U1 0 % Power Shutdown at Time _____ Date _____ / _____ / _____

☒ U2 _____ % Power Shutdown at Time _____ Date _____ / _____ / _____

☒ U3 _____ % Power Shutdown at Time _____ Date _____ / _____ / _____

13. REMARKS: _____

FOLLOW-UP INFORMATION (Lines 14 through 16 Not Required for Initial Notifications)

EMERGENCY RELEASE DATA. NOT REQUIRED IF LINE 6 A IS SELECTED.

14. RELEASE CHARACTERIZATION: TYPE: ☒ Elevated ☒ Mixed ☒ Ground UNITS: ☒ Ci ☒ Ci/sec ☒ μ Ci/sec
- MAGNITUDE: Noble Gases: _____ Iodines: _____ Particulates: _____ Other: _____
- FORM: ☒ Airborne Start Time _____ Date _____ / _____ / _____ Stop Time _____ Date _____ / _____ / _____
- ☒ Liquid Start Time _____ Date _____ / _____ / _____ Stop Time _____ Date _____ / _____ / _____

15. PROJECTION PARAMETERS: Projection period: _____ Hours Estimated Release Duration _____ Hours
- Projection performed: Time _____ Date _____ / _____ / _____

16. PROJECTED DOSE: DISTANCE TEDE (mrem) Adult Thyroid CDE (mrem)
- Site boundary _____
- 2 Miles _____
- 5 Miles _____
- 10 Miles _____

17. APPROVED BY: _____ (Sign and Date) Title _____ Time _____ Date _____ / _____ / _____
- NOTIFIED BY: _____ RECEIVED BY: _____ Time _____ Date _____ / _____ / _____