Facility:	Turkey Point	Task No:	
Task Title:	Perform 1/M Plot During Reactor Startup	Job Performance Measure No:	A.1.a - Conduct of Ops 1 (RO)
K/A Reference:	001 K5.75 (2.9/3.5) 015 K5.05 (4.1/4.4)		
Applicant:		NRC Examiner:	
Facility Evaluator:		Date:	

Method of testing: Classroom (New)

Simulated Performance _____ Actual Performance Yes

Classroom Yes Simulator _____ Plant _____

Read to the applicant:
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 Unit 3 startup is in progress per 3-GOP-301, "Hot Standby to Power Operation" through Step 5.15.3. The RO is preparing to withdraw control banks to bring the reactor critical. Currently, conditions are as follows:

Unit 3 Cycle:	22
Core Burnup:	10,000 MWD/MTU
RCS Pressure:	2235 psig
Tavg:	547°F
SR N-31:	340 cps (Highest reading SR)
IR N-35:	1.2E-11 amps (Highest reading IR)

The ECC estimated critical rod position is D/76.

Assigned Task:
Perform a 1/M plot for the approach to criticality per 3-GOP-301, applying all appropriate precautions.

Task Standard:
Perform the 1/M plot in accordance with the guidance in 3-GOP-301, Attachment 1. Correctly fill in critical data on Page 2 of 3-GOP-301, Attachment 1. Predict the critical rod height at the 3rd doubling ≥ rod height D-149. Stop the startup following the 3rd doubling.

Required Materials:
1. Plant Curve Book
2. 3-GOP-301, "Hot Standby to Power Operation"
3. Completed 0-OSP-040.4, "Estimated Critical Conditions", Attachment 3
4. Calculator
5. Straight edge
6. Pencils

General References:
1. 3-GOP-301, "Hot Standby to Power Operation"
2. Plant Curve Book
3. 0-OSP-040.4, Estimated Critical Conditions

Initiating Cue:

You have been directed to perform a 1/M plot for the approach to criticality per GOP-301.

The examiner will provide cues related to source range count rate, intermediate range power level and rod position at each doubling.

When you are ready to begin and when you have completed entering data and plotting the 1/M at each doubling, you will announce your readiness to continue by telling the examiner you are ready to continue with the next rod pull.

Time Critical Task: No

Validation Time: 20 minutes

INSTRUCTIONS TO APPLICANT

READ TO APPLICANT:
WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, 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.

HAND JPM BRIEFING SHEET TO APPLICANT AT THIS TIME!

INITIAL CONDITIONS:

A Unit 3 startup is in progress per 3-GOP-301, "Hot Standby to Power Operation" through Step 5.15.4. The RO is preparing to withdraw control banks to bring the reactor critical. Currently, conditions are as follows:

Unit 3 Cycle:	22
Core Burnup:	10,000 MWD/MTU
RCS Pressure:	2235 psig
Tavg:	547°F
SR N-31:	340 cps (Highest reading SR)
IR N-35:	1.2E-11 amps (Highest reading IR)

The ECC estimated critical rod position is D/76.

INITIATING CUE:

You have been directed to perform a 1/M plot for the approach to criticality per GOP-301.

The examiner will provide cues related to source range count rate, intermediate range power level and rod position at each doubling.

When you are ready to begin and when you have completed entering data and plotting the 1/M at each doubling, you will announce your readiness to continue by telling the examiner you are ready to continue with the next rod pull.

TERMINATION CUE:

When you feel that you have satisfactorily completed the assigned task, hand your JPM briefing sheet back to me.

Do you have any questions?

You may begin.

Denote critical steps with a check mark(✓)

Start Time _____

STEP 1 :	Review 3-GOP-301 Precautions and Limitations and/or guidance provided on Attachment 1 and 0-OSP-040.4 Completed Attachment 3.	____ SAT ____ UNSAT
STANDARD:	Reviews 3-GOP-301, P&Ls, Attachment 1, Plant Curve Book and 0-OSP-040.4, Attachment 3.	
NOTE:	*Verify required materials listed on Page 1 of JPM are available to the applicant.*	

STEP 2 :	Enter correct values on Attachment 1, Row C_0, based on JPM Briefing Sheet initial conditions.	____ SAT ____ UNSAT
STANDARD:	Enters following values on Attachment 1 page 2 Row C_0: CPS = 340 N-31 = 340 N-35 = 1.2E-11	

STEP 3 :	Inform US ready for start of control rod withdrawal to 1st doubling.	____ SAT ____ UNSAT
STANDARD:	Informs US (examiner) ready for start of control rod withdrawal to 1st doubling.	
CUE:	***Once applicant indicates readiness to begin control rod withdrawal, <u>provide applicant with copy of Data Sheet 1</u> containing the following infomation:*** *Rods have been withdrawn to Control Bank D at 4 steps.* *Count rate has stabilized at the first doubling.* *N-31 countrate is 700 cps.* *N-35 is reading 1.3 E-11 amps.*	

STEP 4 :	1. Enter correct values for CPS, N-31 & N-35 on Attachment 1, page 2, Row C_1, based on Examiner Cue. 2. Calculate 1/M for N-31 and N-35 based on examiner cue and enters values on Attachment 1, page 2, Row C_1. 3. Plot 1/M vs. rod position on Attachment 1, page 3. 4. Make prediction of critical rod height and enters predicted values on Attachment 1, page 2, Row C_1. 5. Inform US ready for control rod withdrawal to 2nd doubling.	____ SAT ____ UNSAT
STANDARDS: ✓ ✓	1. Enters following values on Attachment 1, page 2, Row C_1: CPS = 680 N-31 = 700 N-35 = 1.3E-11 Actual Rod Height, Bank = D & Step = 4 2. Calculates & enters following values on Attachment 1, page 2, Row C_1 1/M: Column I (N-31) = 0.48 - 0.49 Column II (N-35) = 0.92 - 0.93 3. On Attachment 1, page 3, plots N-31 line from upper left corner to intersection of 0.48-0.49 & D/4. N-35 line from upper left corner to intersection of 0.92-0.93 & D/4. 4. On Attachment 1,page 3, extends N-31 & N-35 lines and determines neither crosses x-axis within confines of graph. On Attachment 1, page 2, enters Predicted Rod Height >D/230 in column I (N-31) and >D/230 in column II (N-35). 5. Informs US (examiner) ready for control rod withdrawal to 2nd doubling.	
NOTE:	***Only standards related to N-31 are critical.***	
CUE:	***Once applicant indicates readiness to resume control rod withdrawal, provide applicant with copy of Data Sheet 2 containing the following infomation:*** *Rods have been withdrawn to Control Bank D at 80 steps.* *Count rate has stabilized at the second doubling.* *N-31 countrate is 1400 cps.* *N-35 is reading 1.4 E-11 amps.*	

STEP 5 :	1. Enter correct values for CPS, N-31 & N-35 on Attachment 1, page 2, Row C_2, based on Examiner Cue. 2. Calculate 1/M for N-31 and N-35 based on examiner cue and enters values on Attachment 1, page 2, Row C_2. 3. Plot 1/M vs. rod position on Attachment 1, page 3. 4. Make prediction of critical rod height and enters predicted values on Attachment 1, page 2, Row C_2. 5. Inform US ready for control rod withdrawal to 3rd doubling.	____ SAT ____ UNSAT
STANDARD: ✓ ✓	1. Enters following values on Attachment 1, page 2, Row C_1: CPS = 1360 N-31 = 1400 N-35 = 1.4E-11 Actual Rod Height, Bank = D & Step = 80 2. Calculates & enters following values on Attachment 1, page 2, Row C_1 1/M: Column I (N-31) = 0.24 - 0.25 Column II (N-35) = 0.85 - 0.86 3. On Attachment 1, page 3, plots N-31 line from intersection of 0.48-0.49 & D/4 to intersection of 0.24-0.25 & D/80. N-35 line from intersection of 0.92-0.93 & D/4 to intersection of 0.85-0.86 & D/80. 4. On Attachment 1, page 3, extends N-31 & N-35 lines and determines neither crosses x-axis within D/230. On Attachment 1, page 2, enters Predicted Rod Height D/152 **(D/140 - D/160 acceptable)** in column I (N-31) and >D/230 in column II (N-35). 5. Inform US (examiner) ready for control rod withdrawal to 3rd doubling.	
NOTE:	***Only standards related to N-31 are critical.***	
CUE:	***Once applicant indicates readiness to resume control rod withdrawal, provide applicant with copy of Data Sheet 3 containing the following infomation:*** *Rods have been withdrawn to Control Bank D at 120 steps.* *Count rate has stabilized at the third doubling.* *N-31 countrate is 2800 cps.* *N-35 is reading 1.7 E-11 amps.*	

STEP 6 :	1. Enter correct values for CPS, N-31 & N-35 on Attachment 1, page 2, Row C_3, based on Examiner Cue. 2. Calculate 1/M for N-31 and N-35 based on examiner cue and enters values on Attachment 1, page 2, Row C_3. 3. Plot 1/M vs. rod position on Attachment 1, page 3. 4. Make prediction of critical rod height and enters predicted values on Attachment 1, page 2, Row C_3. 5. Determine pcm difference between ECC predicted value and I/M predicted value exceeds 300 pcm and startup is required to be stopped.	____ SAT ____ UNSAT
STANDARD:	1. Enters following values on Attachment 1, page 2, Row C_1: CPS = 2720 N-31 = 2800 N-35 = 1.7E-11 Actual Rod Height, Bank = D & Step = 120	
✓	2. Calculates & enters following values on Attachment 1, page 2, Row C_1 1/M: Column I (N-31) = 0.12 - 0.13 Column II (N-35) = 0.70 - 0.71	
	3. On Attachment 1, page 3, plots N-31 line from intersection of 0.24-0.25 & D/80 to intersection of 0.12-0.13 & D/120. N-35 line from intersection of 0.85-0.86 & D/80 to intersection of 0.70-0.71 & D/120.	
✓	4. On Attachment 1, page 3, extends N-31 & N-35 lines and determines N-31 crosses x-axis at approximately D/160 **(acceptable value D/148 - D/164)** while N-35 crosses x-axis >D/230. On Attachment 1, page 2, enters Predicted Rod Height D/160 in column I (N-31) and >D/230 in column II (N-35).	
✓	5. Refers to completed 0-OSP-040.4, Attachment 3, or PCB, Section 2, Figure 5 and notes ECC predicted critical IRW at D/76 is 675 pcm while D/160 IRW = 325 pcm. **When compared to the 1/M predicted critical rod height worth, the difference exceeds 300 pcm requiring at least Shift Manager permission to continue.**	
	6. Informs US (examiner) he recommends discontinuing the reactor startup until Shift Manager permission to continue is obtained.	
NOTE:	***Only standards related to N-31 are critical.***	

Terminating Cue:	**Applicant recommendation to discontinue reactor startup until Shift Manager permission to continue obtained.**	**STOP**

Stop Time _____

Verification of Completion

Job Performance Measure No. A.1.a - Conduct of Ops 1 (RO)

Applicant's Name: _____

Examiner's Name: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Question Documentation:

Question:

_____

_____

_____

_____

_____

Response:

_____

_____

_____

_____

_____

Result: Satisfactory/Unsatisfactory

Examiner's signature and date: _____ _____

JPM BRIEFING SHEET

INITIAL CONDITIONS:

A Unit 3 startup is in progress per 3-GOP-301, "Hot Standby to Power Operation" through Step 5.15.4. The RO is preparing to withdraw control banks to bring the reactor critical. Currently, conditions are as follows:

Unit 3 Cycle:	22
Core Burnup:	10,000 MWD/MTU
RCS Pressure:	2235 psig
Tavg:	547°F
SR N-31:	340 cps (Highest reading SR)
IR N-35:	1.2E-11 amps (Highest reading IR)

The ECC estimated critical rod position is D/76.

INITIATING CUE:

You have been directed to perform a 1/M plot for the approach to criticality per GOP-301.

The examiner will provide cues related to source range count rate, intermediate range power level and rod position at each doubling.

When you are ready to begin and when you have completed entering data and plotting the 1/M at each doubling, you will announce your readiness to continue by telling the examiner you are ready to continue with the next rod pull.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU FEEL THAT YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

DATA SHEET 1

Rods have been withdrawn to Control Bank D at 4 steps.

Count rate has stabilized at the first doubling.

N-31 countrate is 700 cps.

N-35 is reading 1.3 E-11 amps.

DATA SHEET 2

Rods have been withdrawn to Control Bank D at 80 steps.

Count rate has stabilized at the second doubling.

N-31 countrate is 1400 cps.

N-35 is reading 1.4 E-11 amps.

DATA SHEET 3

Rods have been withdrawn to Control Bank D at 120 steps.

Count rate has stabilized at the third doubling.

N-31 countrate is 2800 cps.

N-35 is reading 1.7 E-11 amps.

ATTACHMENT 1
(Page 1 of 3)

INVERSE COUNT RATE DATA AND PLOT SHEET

Unit Number: _____ Time _____

Completed By: _____ Date _____

Estimated Critical Rod Position: Bank_____ Steps _____

Directions:

1. Note **AND** record the initial counts/current. The highest reading Source Range **AND** highest reading Intermediated Range channels should be used.

2. Pull control rods until the count rate approximately doubles.

3. Wait one minute (minimum), **THEN** record the actual count rate **AND** rod height. Calculate and record 1/M below land on the graph. Predict the critical rod height **AND** record below.

4. Repeat Steps 2 and 3 until 1/M-.125 (3 doublings). Follow the guidance of Precautions and Limitations Section, Subsection 4.27, prior to continuing.

NOTE

If there a significant difference between the Source Range and Intermediate Range predicted critical rod height, the Source Range should be used.

5. Continue repeating Steps 2 and 3 until criticality is achieved.

ATTACHMENT 1
(Page 2 of 3)

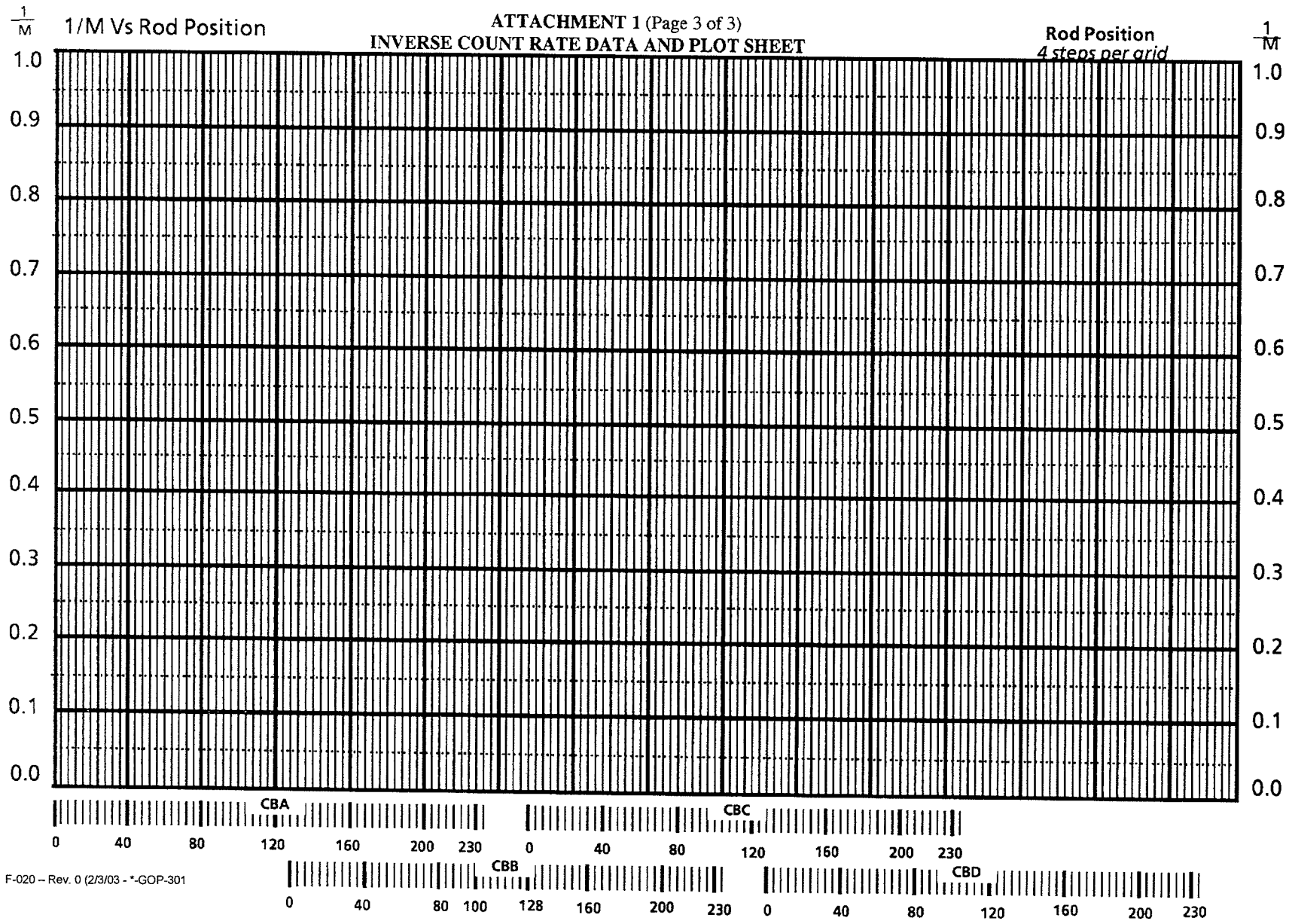
INVERSE COUNT RATE DATA AND PLOT SHEET

NOTE

If criticality is not achieved prior to de-energizing the Source Range, the Intermediate Range channel reading the highest should be used for predicting the critical rod height.

Doubling		Count Rate (CPS/Amps)		1/M (C_0/C_i)		Actual Rod Height		Predicted Rod Height	
No.	CPS	N-3( )	N-3( )	I	II	Bank	Step	I	II
C_0				1.0	1.0	A	0		
C_1									
C_2									
C_3									
C_4									
C_5									
C_6									
C_7									
C_8									
C_9									
C_{10}									

ATTACHMENT 1 (Page 3 of 3)
INVERSE COUNT RATE DATA AND PLOT SHEET



W2003:TNM/ld/mrg/mrg

ATTACHMENT 1
(Page 2 of 3)

INVERSE COUNT RATE DATA AND PLOT SHEET

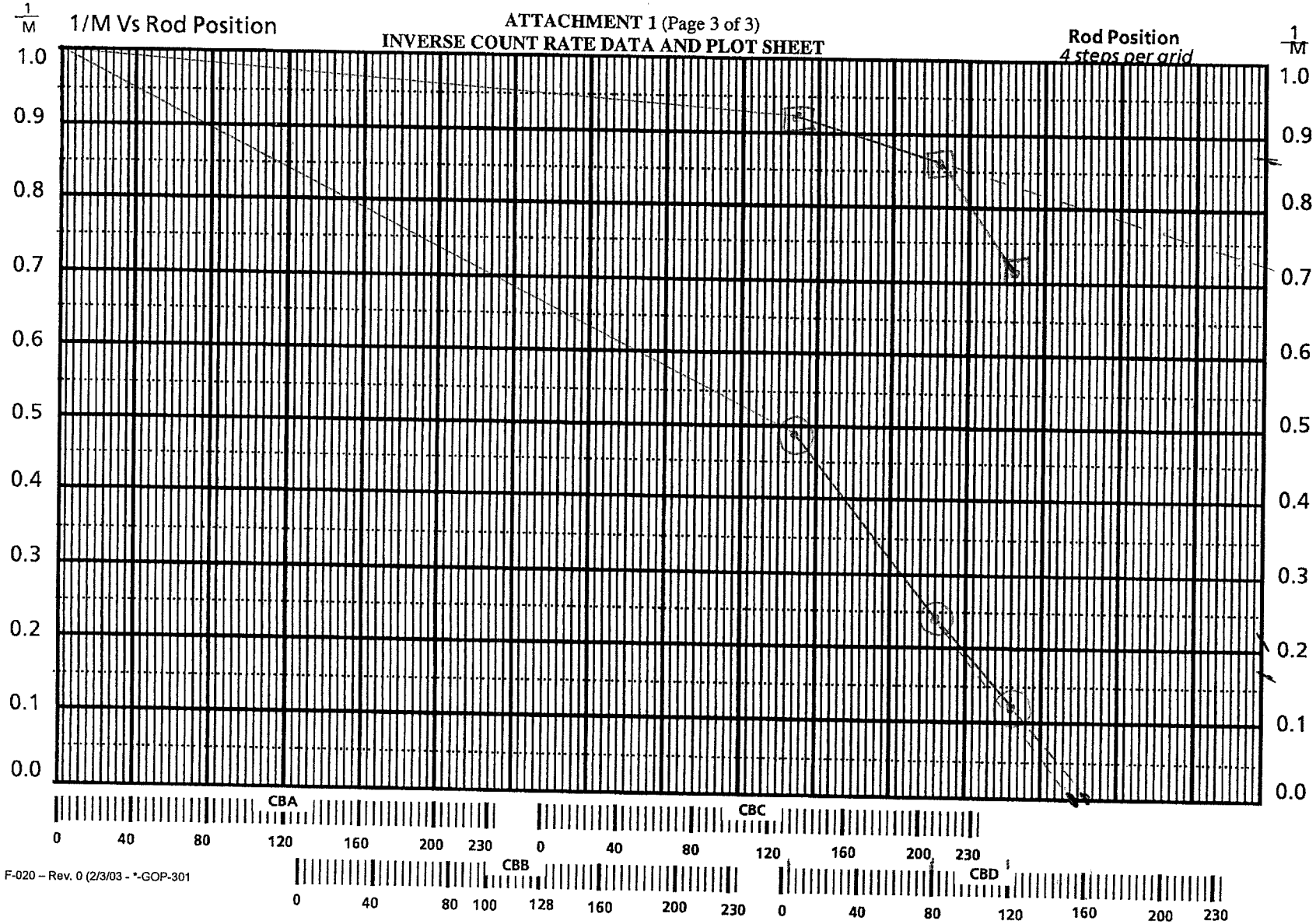
NOTE

If criticality is not achieved prior to de-energizing the Source Range, the Intermediate Range channel reading the highest should be used for predicting the critical rod height.

Doubling		Count Rate (CPS/Amps)		1/M (C_0/C_i)		Actual Rod Height		Predicted Rod Height	
No.	CPS	N-3(1)	N-3(5)	I	II	Bank	Step	I	II
C_0	340	340	1.2E-11	1.0	1.0	A	0	N/A	N/A.
C_1	680	700	1.3E-11	0.49	0.92	D	4	>D/230	>D/230
C_2	1360	1400	1.4E-11	0.24	0.86	D	80	D/152	>D/230
C_3	2720	2800	1.7E-11	0.12	0.71	D	120	D/160	>D/230
C_4									
C_5									
C_6									
C_7									
C_8									
C_9									
C_{10}									

ANSWER KEY

ATTACHMENT 1 (Page 3 of 3)
INVERSE COUNT RATE DATA AND PLOT SHEET



ANSWER KEY A.1.a - RO

ATTACHMENT 3
(Page 1 of 1)
ACCEPTANCE CRITERIA WORKSHEET *

	1000 pcm early	500 pcm early	400 pcm early	300 pcm early	200 pcm early	From Attachment 1	200 pcm late	300 pcm late	400 pcm late	500 pcm late	1000 pcm late
Rod Worth in Pcm	1675	1175	1075	975	875	675	475	375	275	175	N/A
Estimated Rod Position From PCB	<D/0	D/23	D/35	D/45	D/56	D/76	D/121	D/149	D/170	D/187	>D/230
					The critical rod position is allowed to vary from the estimated critical rod position by ±200 pcm. If greater than ±200 pcm, Reactor Engineering shall review the calculations within 5 working days.						
				If after the 3rd doubling the projected critical rod position deviates from the ECC rod position by greater than 300 pcm but less than or equal to 400 pcm, permission to pull to critical shall be obtained from the Nuclear Plant Supervisor or his designee.							
			If after the 3rd doubling the projected critical rod position deviates from the ECC rod position by greater than 400 pcm but less than or equal to 500 pcm, permission to pull to critical shall be obtained from the Reactor Engineering Supervisor or his designee.								
		If after the 3rd doubling the projected critical rod position deviates from the ECC rod position by greater than 500 pcm but less than 1000 pcm, the control banks shall be reinserted and the ECC calculation reevaluated. If the error cannot be determined, permission of the Operations Manager and the Reactor Engineering Supervisor or their designees must be obtained prior to making the reactor critical under the guidance of the 1/M plot.									

* Early Reactivity means adding the number of pcm (i.e., 200 pcm, 300 pcm, etc.) to the estimated rod worth of the HZP estimated critical rod position. Late reactivity means subtracting the number of pcm from the estimated rod worth of the HZP estimated critical rod position.

(SKO)

Facility:	Turkey Point	Task No:	
Task Title:	Verify Adequate Shutdown Margin	Job Performance Measure No:	A.1.a - Conduct of Ops 1 (SRO)
K/A Reference:	G2.1.7 (3.7/4.4) 001 A4.11 (3.5/4.1)		
Applicant:		NRC Examiner:	
Facility Evaluator:		Date:	

Method of testing: Classroom (New)

Simulated Performance Yes Actual Performance

Classroom Yes Simulator Plant

Read to the applicant:
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:

1. The time is 0800. At 0700, the Unit 4 reactor tripped from 100% power due to loss of an SGFP. All rods inserted.
2. 4-EOP-ES-0.1 is in use awaiting completion of step 23 (shifting s/g feedwater from AFW to standby feedwater).
3. All 3 Unit 4 RCPs are in use
4. 4A & 4B charging pumps are in service with letdown orifices isolation valves CV-4-200A & B open
5. RCS Tavg = 547 °F being maintained on the atmospheric steam dumps. Anticipate maintaining current RCS conditions for at least the next 24 hours.
6. All Unit 4 4kV buses are on offsite power
7. Current Unit 4 Cycle 23 burnup = 4522 MWD/MTU
8. Current Unit 4 RCS boron concentration as of 0600 = 1022 ppm
9. Reactor Engineering informs you that the reactivity worth of Xenon can not be easily determined.

Assigned Task:

The Shift Manager has directed you, as Unit 4 Unit Supervisor, to verify adequate shutdown margin per 0-OP-028.2, "Shutdown Margin Calculation" for maintaining Unit 4 at hot standby (547°F) until 0800 tomorrow. Use the preferred and recommended (conservative) method to determine minimum shutdown boron concentration (MSBC).

Task Standards:

1. Required RCS boron concentration is determined based on projected plant conditions
2. Required RCS boron concentration is compared to the existing boron concetration to determine if adequate shutdown margin exists.
3. If adequate shutdown margin does not exist, directs appropriate corrective action to establish adequate shutdown margin for projected plant conditions.

Required Materials:

1. Unit 4 Plant Curve Book
2. 4-EOP-ES-0.1, "Reactor Trip Response"
3. 0-OP-028.2, "Shutdown Margin Calculation"

General References:

1. Unit 4 Plant Curve Book
2. 4-EOP-ES-0.1, "Reactor Trip Response"
3. 0-OP-028.2, "Shutdown Margin Calculation"
4. Technical Specifications

Initiating Cue:

The Shift Manager has directed you, as Unit 4 Unit Supervisor, to verify adequate shutdown margin per 0-OP-028.2, "Shutdown Margin Calculation" for maintaining Unit 4 at hot standby (547°F) until 0800 tomorrow. Use the preferred and recommended (conservative) method to determine minimum shutdown boron concentration (MSBC).

Time Critical Task: No

Validation Time: 40 minutes

INSTRUCTIONS TO APPLICANT

READ TO APPLICANT:
WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, 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.

HAND JPM BRIEFING SHEET TO APPLICANT AT THIS TIME!

INITIAL CONDITIONS:

1. The time is 0800. At 0700, the Unit 4 reactor tripped from 100% power due to loss of an SGFP. All rods inserted.
2. 4-EOP-ES-0.1 is in use awaiting completion of step 23 (shifting s/g feedwater from AFW to standby feedwater).
3. All 3 Unit 4 RCPs are in use
4. 4A & 4B charging pumps are in service with letdown orifices isolation valves CV-4-200A & B open
5. RCS Tavg = 547 °F being maintained on the atmospheric steam dumps. Anticipate maintaining current RCS conditions for at least the next 24 hours.
6. All Unit 4 4kV buses are on offsite power
7. Current Unit 4 Cycle 23 burnup = 4522 MWD/MTU
8. Current Unit 4 RCS boron concentration as of 0600 = 1022 ppm
9. Reactor Engineering informs you that the reactivity worth of Xenon can not be easily determined.

INITIATING CUE:

The Shift Manager has directed you, as Unit 4 Unit Supervisor, to verify adequate shutdown margin per 0-OP-028.2, "Shutdown Margin Calculation" for maintaing Unit 4 at hot standby (547°F) until 0800 tomorrow. Use the preferred and recommended (conservative) method to determine minimum shutdown boron concentration (MSBC).

TERMINATION CUE:

When you feel that you have satisfactorily completed the assigned task, hand your JPM briefing sheet back to me.

Do you have any questions?

You may begin.

EXAMINER NOTES:

1. **This task is to be performed in the classroom.**
2. **Copies of 4-EOP-ES-0.1 and 0-OP-028.2 should be provided to the applicant along with the JPM Briefing Sheet**
3. **Also provide a copy of sections II & III of the current Unit 4 Plant Curve Book (the ILC frozen version does not contain data appropriate for this JPM).**

Denote critical steps with a check mark(✓)

Start Time _____

STEP 1 :	Obtain 0-OP-028.2 and: 1. Check procedures for active OTSCs 2. Review Precautions & Limitations 3. Determine section 7.2 applies requiring completion of Attachment 2 4. Initiate use of Attachment 2	____ SAT ____ UNSAT
STANDARD:	Obtains 0-OP-028.2 and: 1. Checks procedures for active OTSCs 2. Reviews Precautions & Limitations 3. Determines section 7.2 applies 4. Initiates use of Attachment 2	

STEP 2 :	Record reference conditions on 0-OP-028.2 Attachment 2 (attachment step 1)	____ SAT ____ UNSAT
STANDARD:	Records the following reference conditons on 0-OP-028.2 Att. 2: 1. Unit = 4 (from initial conditions) 2. Cycle = 23 (from initial conditions) 3. Shutdown = today's date & 0700 4. Cycle burnup = 4522 MWD/MTU (from initial conditions)	

STEP 3 :	Record calculation point conditions on 0-OP-028.2 Attachment 2 (attachment step 2)	____ SAT ____ UNSAT
STANDARD:	Records the following reference conditons on 0-OP-028.2 Att. 2: 1. Calculation point = 0800 tomorrow (from initiating cue) 2. Time since shutdown = 1 + 24 = 25 hr (from initial conditions) 3. Most recent RCS boron concentration = 1022 ppm, sample date and time = current date & 2 hr ago (from initial conditions) 4. Average RCS temperature at calculation point time = 547°F (from initial conditions) 5. Mode = Mode 3, Hot Standby, RCS temperature 350-547°F 6. Number of control rods not fully inserted = 0 (from initial conditions)	

STEP 4 :	Review NOTES prior to 0-OP-028.2 Attachment 2 Step 3 Determine minimum required RCS boron concentration on 0-OP-028.2 Attachment 2 (attachment step 3)	____ SAT ____ UNSAT
STANDARDS: ✓	1. Reviews NOTES prior to 0-OP-028.2 Attachment 2 Step 3 and determines method for determining Minimum Shutdown Boron Concentration (MSBC) (uses conservative method outlined in NOTES) 2. Determines MSBC: a. Records minimum average RCS temperature over the next 24 hrs = 547°F (from initial conditions) b. Records RCS temperature statepoint/curve used for calculating MSBC = 547°F (from initial conditions) c. Obtains U4 Plant Curve Book (PCB) and finds Sect. III, Fig. 5A, "Minimum Shutdown Boron Concentration (ppm) vs RCS Temperature as a Function of Burnup (ARI-1, No Xe)" table d. Using the "conservative" (interpolate burnup only) method: 1) Located burnup values (4000 & 6000 MWD/MTU) that bound the burnup provided in the initial conditions (4522 MWD/MTU) along top row of table. 2) Located current moderator temperature (547°F) found in far left column of table. 3) Located intersection of these values on table (1119 ppm & 995 ppm) and interpolates between them 1119 -[(1119-995) x ((4522-4000)/(6000-4000))] = 1119 - [124 x 0.261)] = 1087 ppm (± 15 ppm) e. Confirms RCS temperature = 547°F used throughout the MSBC calculation	
NOTE:	1. *Verify Unit 4 Plant Curve Book made available once applicant identifies need to use it.* 2. *In U4 PCB Sect III Figure 5A table, applicant should read intersection of 547°F row with 4000 & 6000 MWD/MTU columns and read boron concentrations = 1119 & 995 ppm respectively.* 3. *If applicant asks for "Verified By" initials in step 3.4, acknowledge request but state that verification can not be provided during JPMs.*	

STEP 5 :	Review CAUTION & NOTES prior to 0-OP-028.2 Attachment 2 Step 4 Using time since shutdown, determine Boron Equivalent of the Xenon Worth. (attachment step 4)	____ SAT ____ UNSAT
STANDARD:	Reviews CAUTION & NOTES prior to 0-OP-028.2 Attachment 2 Step 4 Since time for shutdown margin verification exceeds 20 hours, enters Boron Equivalent of the Xenon Worth = 0	

STEP 6 :	Review NOTE prior to 0-OP-028.2 Attachment 2 Step 4 Calculate RCCA correction per 0-OP-028.2 Attachment 2. (attachment step 5)	____ SAT ____ UNSAT
STANDARD:	Reviews NOTE prior to 0-OP-028.2 Attachment 2 Step 5 Since all rods inserted (from initial conditions), determines RCCA correction = 0 ppm	

STEP 7 :	Record corrected MSBC (attachment step 6)	____ SAT ____ UNSAT
STANDARD:	Since Boron Equivalent of the Xenon Worth & RCCA corrections both equal zero ppm, enters previously calculated MSBC as the corrected MSBC (see JPM step 4 results above)	

STEP 8 : ✓	Determine if shutdown margin is adequate for projected plant conditions. (attachment step 7)	____ SAT ____ UNSAT
STANDARD:	1. Current RCS boron concentration is compared to the MSBC 2. For the initial conditions given, determines adequate shutdown margin does not exist to maintain hot standby for at least 24 hours since current RCS boron concentration (1022 ppm) is less than MSBC (1087±15 ppm) 3. Goes to attachment 2 step 9 to determine required boration	

STEP 9 :	Report results of shutdown margin verification to Shift Manager	____ SAT ____ UNSAT
STANDARD:	Informs SM (examiner) unit 4 shutdown margin not adequate for projected plant conditions.	

STEP 10 : ✓	Calculate gallons of Acid required to increase the RCS Boron Concentration to greater than or equal to MSBC Direct RO to initiate boration to raise RCS boron concentration above minimum required for adequate shutdown margin.	____ SAT ____ UNSAT
STANDARDS:	Calculates gallons of Acid required to increase the RCS Boron Concentration to greater than or equal to MSBC as follows: MSBC = 1087±15 ppm, calculates gallons of boric Acid required: 50790 gal x ln[(5245 - 1022)/(5245 - 1087)] = 50790 gal x ln[(4223)/(4158)] = 50790 gal x 0.0155 = 788 gal (acceptable range 605 gal to 971 gal)	

Terminating Cue:	**Applicant determines calculated Boric Acid volume to be added to the RCS.**	**STOP**

Stop Time _____

Verification of Completion

Job Performance Measure No. A.1.a - Conduct of Ops 1 (SRO)

Applicant's Name: _____

Examiner's Name: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Question Documentation:

Question:

_____

_____

_____

_____

_____

Response:

_____

_____

_____

_____

_____

Result: Satisfactory/Unsatisfactory

Examiner's signature and date: _____ _____

JPM BRIEFING SHEET

INITIAL CONDITIONS:

1. The time is 0800. At 0700, the Unit 4 reactor tripped from 100% power due to loss of an SGFP. All rods inserted.
2. 4-EOP-ES-0.1 is in use awaiting completion of step 23 (shifting s/g feedwater from AFW to standby feedwater).
3. All 3 Unit 4 RCPs are in use
4. 4A & 4B charging pumps are in service with letdown orifices isolation valves CV-4-200A & B open
5. RCS Tavg = 547 °F being maintained on the atmospheric steam dumps. Anticipate maintaining current RCS conditions for at least the next 24 hours.
6. All Unit 4 4kV buses are on offsite power
7. Current Unit 4 Cycle 23 burnup = 4522 MWD/MTU
8. Current Unit 4 RCS boron concentration as of 0600 = 1022 ppm
9. Reactor Engineering informs you that the reactivity worth of Xenon can not be easily determined.

INITIATING CUE:

The Shift Manager has directed you, as Unit 4 Unit Supervisor, to verify adequate shutdown margin per 0-OP-028.2, "Shutdown Margin Calculation" for maintaing Unit 4 at hot standby (547°F) until 0800 tomorrow. Use the preferred and recommended (conservative) method to determine minimum shutdown boron concentration (MSBC).

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU FEEL THAT YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

ANSWER KEY A.1.a - SRO

ATTACHMENT 2
(Page 1 of 6)

SHUTDOWN MARGIN CALCULATION FOR MODES 3, 4 AND 5

1. Record the following reference conditions:

1.1 Unit 4

1.2 Cycle 23

1.3 Shutdown ..... Date: today xx/xx/xx Time: 0700

NOTE

The Cycle Burnup value in the PCB, Section 5, Figure 4 is periodically updated by Reactor Engineering. Although the actual burnup can be approximately determined to account for core burnup since the last update, recording the most recent value from PCB Section 5, Figure 4 in Step 1.4 will produce conservative results. To approximately determine the actual burnup, increase the burnup by adding 30 MWD/MTU for each day of full power operation (and/or fraction thereof, e.g., add 10 MWD/MTU for 8 hours at full power or 15 MWD/MTU for 24 hours at 50% power, etc.,) since the date and time of the last update.

1.4 Cycle burnup (Plant Curve Book (PCB), Section 5, Figure 4) ..... 4522 MWD/MTU

NOTE

The CALCULATION POINT is the point in time post shutdown at which the Shutdown Margin is to be calculated. It is not necessarily the present time.

2. Record the following calculation point conditions:

2.1 Calculation Point ..... Date: tomorrow Time: 0800

2.2 Time since Shutdown ..... 25 hrs

NOTE

The measured RCS boron concentration entered below should be from the most recent sample. Contact Primary Nuclear Chemistry or access the Chemistry Department (PI) database to obtain the latest RCS boron concentration, and the date and time of the sample.

2.3 Most Recent RCS Boron Concentration ..... 1022 ppm

Sample Date ~~today~~ Time 2 hr ago

2.4 Average RCS Temperature at Date/Time in Step 2.1 ..... 547 °F

ANSWER KEY

ATTACHMENT 2
(Page 2 of 6)

SHUTDOWN MARGIN CALCULATION FOR MODES 3, 4 AND 5

2.5 The Mode:

Mode 3:	Hot Standby	RCS temperature at 350 - 547°F	X
Mode 4:	Hot Shutdown	RCS temperature at 200 - 350°F	
Mode 5:	Cold Shutdown	RCS temperature below 200°F	

During Unit 3 Cycle 22, the position of rod M-6 in Control Bank C will be determined by an alternate method. For the purpose of calculating shutdown margin for Unit 3 Cycle 22, Modes 3, 4 and 5, Rod M-6 is assumed to be fully withdrawn following a reactor trip. The number of rods not fully inserted is determined as follows:

- **IF** all rods except M-6 are fully inserted following a reactor trip, **THEN** the number of rods not fully inserted equals 1.
- **IF** another control rod(s) other than Rod M-6 does not fully insert following a reactor trip, **THEN** Rod M-6 is not counted when determining the number of rods inserted. Rod M-6 is not counted in this case, because this rod is specifically accounted for as being fully withdrawn in the reactivity values used to calculate subsequent steps.

2.6 Record the number of Control Rods that are NOT fully inserted 0

NOTES

The Minimum Shutdown Boron Concentration (MSBC) calculated in Step 3 is a function of RCS Temperature and Burnup. There are three methods available to determine MSBC as follows:

- *A very conservative reactivity determination of MSBC may be made without interpolation by using the applicable PCB Section 3, Figure 5A and choosing the burnup statepoint/curve and the RCS temperature statepoint/curve that are less than the burnup in Step 1.4 and temperature in Step 2.4, respectively. However, using this method, the result may be a higher value than what is desired for the actual plant condition.*
- *A conservative reactivity determination of MSBC may be made by a single interpolation of burnup using the applicable PCB Section 3, Figure 5A and choosing the temperature statepoint/curve that is less than or equal to the temperature in Step 2.4.* ***This is the preferred and recommended method.***
- *Accepting the built-in conservatism in unit/cycle specific data, an accurate reactivity determination of MSBC may be made by a double interpolation of burnup and average RCS temperature using the applicable PCB Section 3, Figure 5A. Using this method, the result is the lowest acceptable value achievable, which may be desired for the actual plant condition.*

ATTACHMENT 2
(Page 2 of 6)

SHUTDOWN MARGIN CALCULATION FOR MODES 3, 4 AND 5

3. Determine the Minimum Shutdown Boron Concentration

3.1 Record the minimum average RCS temperature that will be assumed in the calculation and will bound the actual temperature in Step 2.4 and expected changes in plant conditions, based on Operations' input, over the next 24 hours.

Assumed Minimum Average RCS Temperature [547] °F

CAUTION

To preclude a non-conservative reactivity determination of Minimum Shutdown Boron Concentration, the temperature statepoint/curve used in Step 3.2 must be less than or equal to the actual average RCS Temperature recorded in Step 2.4 or the lowest average RCS temperature expected by Operations due to potential changes in plant conditions during the ensuing 24 hours, as applicable.

3.2 Record the RCS temperature statepoint/curve that will be used to calculate the Minimum Shutdown Boron Concentration. N/A if double interpolation is used.

RCS Temperature statepoint/curve [547] °F

NOTES

In Step 3.3 below, Plant Curve Book Section 3, Figure 5A already includes the reactivity effects of the minimum, Hot Full Power, steady state Samarium concentration. Figure 5A conservatively does NOT take credit for the additional build-up of Samarium that occurs after Unit shutdown.

During Unit 3 Cycle 22, for the purposes of calculating shutdown margin in Modes 3, 4 and 5, Rod M-6 in Control Bank C is assumed to be fully withdrawn following a reactor trip.

- *If all rods except Rod M-6 are fully inserted following a reactor trip, use PCB Section 3, Figure 5A (Minimum Shutdown Boron vs. RCS Temperature as a function of Burnup* ***(ARI-1, No-Xenon)****.*
- *If another control rod other than M-6 does not fully insert following a reactor trip, use PCB Section 3, Figure 5A (Minimum Shutdown Boron vs. RCS Temperature as a function of Burnup* ***(ARI-1-M6, No-Xenon)****.*

3.3 Using the burnup from Step 1.4, the temperature from Step 3.2, **AND** the applicable PCB Section 3, Figure 5A (Minimum Shutdown Boron vs RCS Temperature as a function of Burnup), record the Minimum Shutdown Boron Concentration [1087±15 ppm]

Interpolate between 4000 & 6000 MWD/MTU @ 547°F
1119-[(1119-995)x((4522-4000)/(6000-4000))] =
1119 - (124 x 0.261) = 1087 ± 15 ppm

ATTACHMENT 2
(Page 4 of 6)

SHUTDOWN MARGIN CALCULATION FOR MODES 3, 4 AND 5

3.4 Confirm the temperature in Step 3.1 is greater than or equal to the temperature statepoint/curve selected in Step 3.2, and used in Step 3.3 and the proper treatment of burnup OR confirm the correct temperature/burnup statepoints/curves were used in Step 3.3 and check the interpolation calculation results as applicable and proceed to Step 4. If not, then return to Step 3.1.

Performed By: X X X
Initials

Verified By: Y Y Y
Initials

CAUTION

An assumption is made in Step 4 to set Xenon Worth equal to zero pcm (e.g., Xenon-free Condition) or to use the MINIMUM Xenon Worth that will exist in the core for up to 24 hours past the calculation point. This will assure that at no time between this shutdown margin (SDM) calculation and the next SDM calculation (i.e., the Tech Spec 24 hour time interval) will the transient Xenon Worth challenge satisfying the Tech Spec Minimum SDM requirement. This approach is also consistent with 3/4-GOP-103 that allows Operations flexibility to delay boration of the RCS to the Xenon-free condition for up to 20 hours post trip. IF zero pcm is assumed and Operations has not borated to the Xenon-free condition, THEN the calculation may show the minimum SDM requirement is not met in Step 7.

NOTES

The amount of negative reactivity in the core post trip due to Xenon varies with core burnup, the initial power level, power changes pre-trip, and time since trip. The Xenon concentration in the core peaks at 6 to 8 hours post trip, decays to approximately the value prior to the downpower/trip condition at 13 to 20 hours post trip, and fully decays to essentially zero pcm at 100 hours post trip.

There are two methods available to determine the Boron Equivalent of the Xenon Worth as follows:

- *If the Xenon Worth cannot be easily determined AND the time since shutdown is > 20 hours, then it may be set equal to zero. Using a zero value assumes no credit is taken in the SDM calculation for the negative reactivity associated with the actual Xenon present in the reactor core.* ***This is the preferred method when the Unit is borated to the Xenon-free condition.***
- *If the time since shutdown is ≤ 20 hours, a conservative determination of the Boron Equivalent of the Xenon Worth is made by interpolating between the burnup tables in the PCB Section 2, Figure 2A. Interpolate using the Xenon Worth that will bound the* ***MINIMUM*** *Xenon Worth that will exist in the core for up to 24 hours past the calculation point.*

4. Using the Time Since Shutdown from Step 2.2, **AND** the PCB, Section 2, Figure 2A (Xenon Worth vs Time After Shutdown), or the ERDADS Poison Program, record the Boron Equivalent of the Xenon Worth as follows:

Xenon Worth [0] pcm ÷ 15.5 pcm/ppm = [0] ppm

ATTACHMENT 2
(Page 5 of 6)

SHUTDOWN MARGIN CALCULATION FOR MODES 3, 4 AND 5

NOTE

In Step 5, a linear interpolation for Most Reactive Stuck Rod Worth between BOC and EOC using the Burnup in Step 1.4 is appropriate.

5. Calculate the RCCA correction as follows:

5.1 **IF** Step 2.6 equals zero or one, **THEN** the RCCA correction equals zero ppm. [0 ppm]

5.2 **IF** Step 2.6 is greater than one, **THEN** using the PCB, Section 3, Figure 7, Summary of Reactivity Requirements and Shutdown Margin, record the Boron equivalent of those rods not fully inserted as follows:

[1 - Step 2.6 [0]] X Most Reactive Stuck Rod Worth [– pcm] ÷ 7.0 pcm/ppm = [0 ppm]

6. Record the Corrected Minimum Shutdown Boron Concentration as follows:

Step 3.3 [1087±15 ppm] – Step 4 [0 ppm] – Step 5.1 or 5.2 [0 ppm] = [1087±15 ppm]

NOTE

A YES answer in Step 7 confirms the minimum required SHUTDOWN MARGIN per Technical Specifications is being met.

7. Is Step 6 less than or equal to Step 2.3? ..... ☐ YES ☒ NO

8. **IF** Step 7 is YES, **THEN** calculate the Excess SHUTDOWN MARGIN as follows:

N/A [Step 2.3 [ppm] – Step 6 [ppm]] X 7.0 pcm/ppm = [pcm]

ATTACHMENT 2
(Page 6 of 6)

SHUTDOWN MARGIN CALCULATION FOR MODES 3, 4 AND 5

9. **IF** Step 7 is NO, **THEN** IMMEDIATELY perform the following:

9.1 Calculate the gallons of Acid required to increase the RCS Boron Concentration to greater than or equal to that of Step 5 as follows:

$$50{,}790 \text{ gal} \times \ln \left[\frac{(5245 \text{ ppm} - \overset{\text{Step 2.3}}{\boxed{1022 \text{ ppm}}})}{(5245 \text{ ppm} - \underset{\text{Step 6}}{\boxed{1087.15 \text{ ppm}}})} \right] = \boxed{788 \text{ gal}}$$

(acceptable range 605-971 gal)

9.2 Add the volume of Acid from Step 9.1, using 3/4-ONOP-046.1, EMERGENCY BORATION.

9.3 After sufficient time for mixing, obtain a new RCS chemistry sample and reperform Steps 2 through 9 to confirm SHUTDOWN MARGIN per Technical Specifications is being met.

REMARKS:_____

Performed By:_____ Date:_____

Verified By:_____ Date:_____

FINAL PAGE

Facility:	Turkey Point	Task No:	
Task Title:	Evaluate Overtime Requirements	Job Performance Measure No:	A.1.b - Conduct of Operations 2 (SRO)
K/A Reference:	G2.1.1 (3.7/3.8)		
Applicant:		NRC Examiner:	
Facility Evaluator:		Date:	
Method of testing:	Classroom (New)		
Simulated Performance	Yes	Actual Performance	
Classroom	Yes	Simulator	Plant

Read to the applicant:

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:

1. It is 05/02/07 at 0800.
2. You are the Unit Supervisor assigned to Unit 3.
3. The Field Supervisor is trying to fill vacancies on shift and asks for your help in evaluating the overtime requirements for two Reactor Operators he is trying to schedule.

Task Standard:

1. Correctly evaluate overtime requirements for two proposed work schedules.

Required Materials:

1. QI 1-PTN-1, "Organization"

General References:

1. QI 1-PTN-1, "Organization"

Initiating Cue:

Given the following proposed work schedules for Reactor Operator #1 and Reactor Operator #2 determine:

1) Can the remaining scheduled hours be worked during normal work days for your shift through 05/05/07 without violating overtime hour limitations?
2) Both Reactor Operators have volunteered to work their normal days off 05/06/07 and 05/07/07. Is it possible for them to work these hours without violating overtime limits? If not, what additional requirements must be met to allow them to work their days off? Consider each day separately.

Time Critical Task: No

Validation Time: 40 minutes

INSTRUCTIONS TO APPLICANT

READ TO APPLICANT:
WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, 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.

HAND JPM BRIEFING SHEET TO APPLICANT AT THIS TIME!

INITIAL CONDITIONS:

1. It is 05/02/07 at 0800.
2. You are the Unit Supervisor assigned to Unit 3.
3. The Field Supervisor is trying to fill vacancies on shift and asks for your help in evaluating the overtime requirements for two Reactor Operators he is trying to schedule.

INITIATING CUE:

Given the following proposed work schedules for Reactor Operator #1 and Reactor Operator #2 determine:

1) Can the remaining scheduled hours be worked during normal work days for your shift through 05/05/07 without violating overtime hour limitations?
2) Both Reactor Operators have volunteered to work their normal days off 05/06/07 and 05/07/07. Is it possible for them to work these hours without violating overtime limits? If not, what additional requirements must be met to allow them to work their days off? Consider each day separately.

NOTE 1: **The only materials that may be made available by computer are plant procedures and drawings subject to evaluator approval.**

NOTE 2: **Provide copies of Required Materials listed above and JPM Answer Sheet along with JPM Briefing Sheet**

REACTOR OPERATOR #1

Date	Gate Times	Status	Notes
4/30/07	0630-1900	Normal work day	Forced OT to cover 1st half of Peakshift, 30 minute turnover
5/1/07	0630-1900	Normal work day	Forced OT to cover first half of Peakshift, 30 minute turnover
5/2/07	0630-1500	Normal work day	30 minute turnover
5/3/07	0630-1500	Normal work day	30 minute turnover
5/4/07	0630-2300	Normal work day	Forced OT to cover Peakshift, 30 minute turnover
5/5/07	0630-1500	Normal work day	30 minute turnover
5/6/07	0630-1500	Normal day off	Voluntary OT to cover Dayshift, 30 minute turnover
5/7/07	0630-1500	Normal day off	Voluntary OT to cover Dayshift, 30 minute turnover

REACTOR OPERATOR #2

Date	Gate Times	Status	Notes
4/30/07	0630-1500	Normal work day	30 minute turnover
5/1/07	0630-1930	Normal work day	Forced OT to cover first half of Peakshift, 30 minute turnover. Relief arrived 30 minutes late.
5/2/07	0630-1900	Normal work day	Forced OT to cover first half of Peakshift, 30 minute turnover
5/3/07	0630-1900	Normal work day	Forced OT to cover first half of Peakshift, 30 minute turnover
5/4/07	0630-1900	Normal work day	Forced OT to cover first half of Peakshift, 30 minute turnover
5/5/07	0630-1500	Normal work day	30 minute turnover
5/6/07	0630-1900	Normal day off	Voluntary OT to cover Dayshift and first half of Peakshift, 30 minute turnover
5/7/07	0630-1900	Normal day off	Voluntary OT to cover Dayshift and first half of Peakshift, 30 minute turnover

TERMINATION CUE:

When you feel that you have satisfactorily completed the assigned task, hand your JPM Briefing Sheet and JPM Answer Sheet back to me.

Do you have any questions?

You may begin.

Denote critical steps with a check mark (✓)

Start Time _____

STEP 1 : ✓	Given proposed work schedules for Reactor Operator #1 and Reactor Operator #2 determine how many of the remaining scheduled normal and overtime hours may be worked during normal work days for your shift through 05/05/07, if any, without violating overtime limitations?	____ SAT ____ UNSAT
STANDARDS:	1. For Reactor Operator #1, identifies gate-to-gate break time of < 8 hrs between 05/04/07 and 05/05/07. Must leave 30 minutes earlier at 2230 on 05/04/07 or arrive back on site 30 minutes later at 0700 on 05/05/07. 2. For Reactor Operator #2, identifies > 24 hr in 48 hr period for 05/01/07 & 05/02/07. Must leave 30 minutes earlier on 05/02/07 at 1830 on 05/02/07.	
NOTES:	*1. 8 hr gate-to-gate break time applies when overtime guidelines are invoked. See QI 1-PTN-1 step 5.8.3.3.* *2. 24 hr in 48 hr period limit found in QI 1-PTN-1 step 5.8.3.2.b*	

STEP 2 : ✓	Given proposed work schedules for Reactor Operator #1 and Reactor Operator #2 on which both Reactor Operators have volunteered to work their normal days off 05/06/07 and 05/07/07. Is it possible for them to work these hours without violating overtime limits? If applicable,specify any additional administrative requirements necessary to allow them to work their days off?	____ SAT ____ UNSAT
STANDARDS:	1. Reactor Operator #1 may work days off 05/06/07 & 05/07/07 as scheduled without restriction. 2. For Reactor Operator #2, 12 hr may be worked on 05/06/07 with an overtime deviation authorization for that day. The 12 hr on 05/07/07 may not be worked under any circumstances due to > 68 hr in the past 6 days.	
NOTES:	*1. Overtime deviation may be authorized for voluntary overtime exceeding 72 hr in 7 days if work hours are ≤ 68 hr for previous 6 days and 84 hr not exceeded for 7 day period.See QI 1-PTN-1 step 5.8.4*	

Termination Cue:	Applicant completes answering issues posed in initiating cue.	**STOP**

Stop Time _____

Verification of Completion

Job Performance Measure No. A.1.b - Conduct of Operations 2 (SRO)

Applicant's Name: _____

Examiner's Name: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Question Documentation:

Question:

_____

_____

_____

_____

_____

Response:

_____

_____

_____

_____

_____

Result: Satisfactory/Unsatisfactory

Examiner's signature and date: _____ _____

JPM BRIEFING SHEET

INITIAL CONDITIONS:

1. It is 05/02/07 at 0800.
2. You are the Unit Supervisor assigned to Unit 3.
3. The Field Supervisor is trying to fill vacancies on shift and asks for your help in evaluating the overtime requirements for two Reactor Operators he is trying to schedule.

INITIATING CUE:

Given the following proposed work schedules for Reactor Operator #1 and Reactor Operator #2 determine:

1) Can the remaining scheduled hours be worked during normal work days for your shift through 05/05/07 without violating overtime hour limitations?
2) Both Reactor Operators have volunteered to work their normal days off 05/06/07 and 05/07/07. Is it possible for them to work these hours without violating overtime limits? If not, what additional requirements must be met to allow them to work their days off? Consider each day separately.

REACTOR OPERATOR #1

Date	Hours	Gate Times	Notes
4/30/07	0630-1900	Normal work day	Forced OT to cover 1st half of Peakshift, 30 minute turnover
5/1/07	0630-1900	Normal work day	Forced OT to cover first half of Peakshift, 30 minute turnover
5/2/07	0630-1500	Normal work day	30 minute turnover
5/3/07	0630-1500	Normal work day	30 minute turnover
5/4/07	0630-2300	Normal work day	Forced OT to cover Peakshift, 30 minute turnover
5/5/07	0630-1500	Normal work day	30 minute turnover
5/6/07	0630-1500	Normal day off	Voluntary OT to cover Dayshift, 30 minute turnover
5/7/07	0630-1500	Normal day off	Voluntary OT to cover Dayshift, 30 minute turnover

REACTOR OPERATOR #2

Date	Hours	Gate Times	Notes
4/30/07	0630-1500	Normal work day	30 minute turnover
5/1/07	0630-1930	Normal work day	Forced OT to cover first half of Peakshift, 30 minute turnover. Relief arrived 30 minutes late.
5/2/07	0630-1900	Normal work day	Forced OT to cover first half of Peakshift, 30 minute turnover
5/3/07	0630-1900	Normal work day	Forced OT to cover first half of Peakshift, 30 minute turnover
5/4/07	0630-1900	Normal work day	Forced OT to cover first half of Peakshift, 30 minute turnover
5/5/07	0630-1500	Normal work day	30 minute turnover
5/6/07	0630-1900	Normal day off	Voluntary OT to cover Dayshift and first half of Peakshift, 30 minute turnover
5/7/07	0630-1900	Normal day off	Voluntary OT to cover Dayshift and first half of Peakshift, 30 minute turnover

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU FEEL THAT YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

JPM ANSWER SHEET

Answer the following questions:

1. Can the remaining scheduled hours be worked during normal work days for your shift through 05/05/07 without violating overtime hour limitations?

   Reactor Operator #1:

   Reactor Operator #2:

2. Both Reactor Operators have volunteered to work their normal days off 05/06/07 and 05/07/07. Is it possible for them to work these hours without violating overtime limits? If not, what additional requirements must be met to allow them to work their days off? Consider each day separately.

   Reactor Operator #1:

   Reactor Operator #2:

5.8 Overtime (Tech Spec 6.8.5)

NOTE

PTN Overtime Guidelines allow for the following when determining the total amount of hours an individual may be on-site:

- *Shift turnover time (not to exceed 2 hours per day)*
- *Mealtime (not to exceed 1/2 hour per day)*

5.8.1 The objective of the overtime policy is to prevent situations where fatigue could reduce the ability of operating personnel to keep the reactor in a safe condition. This policy should assure that, to the extent practicable, personnel are not assigned to shift duties while in a fatigued condition that could significantly reduce their mental alertness or their decision-making ability.

5.8.2 The overtime guidelines contained in this instruction shall apply to:

1. All Operations classifications
2. Radiation Protection Technologists
3. Key Maintenance personnel (Personnel responsible for the correct performance of maintenance, repair, modification or calibration of safety-related structures, systems or components, and who are performing or immediately supervising such activities.)

NOTES

- *Step 5.8.3 provides the overtime guidelines for determining the total amount of hours an individual may be on site gate to gate.*
- *A break of at least 8 hours is only applicable when the overtime guidelines are invoked.*
- *Shift turnover time is reserved for administrative tasks supporting exchange of responsibilities from shift to shift. It is not intended to extend time on shift for work in the field, such as hanging clearance tags, performing radiological surveys, or any other type of work.*

5.8.3 In the event that unforeseen problems require substantial amounts of overtime to be used, or during extended periods of shutdown for refueling, major maintenance or major plant modifications, on a temporary basis, the following guidelines shall be followed:

1. An individual **should not be permitted to work more than 16 hours straight** (excluding shift turnover time).

5.8.3 (Cont'd)

2. An individual should not be permitted to work:

   a. More than **16 hours in any** 24 hour period

   NOR

   b. More than **24 hours in any** 48 hour period

   NOR

   c. More than **72 hours in any seven (7) day period,** all excluding shift turnover time.

3. A break of at least 8 hours should be allowed between work periods, including shift turnover time.

NOTE

The following provision is an agreement as worded in the Memorandum of Agreement. The process for authorizing overtime deviations shall be followed if an individual will exceed 72 hours in 7 days.

5.8.4 An individual who is being offered prearranged or call out overtime, who has worked less than or equal to 68 hours in the previous 6-day period, will be eligible for the assignment provided that:

1. Individual will not exceed 84 hours in a 7-day period

AND

2. Individual will not exceed the limits set forth in Substeps 5.8.3.1 through 5.8.3.2.b

5.8.5 The assignment of overtime should be considered on an individual basis and not for an entire staff or crew on a particular shift, except during extended shutdowns.

NOTE

It is the responsibility of each individual to ensure compliance with the overtime policy.

5.8.6 Very unusual circumstances may require the utilization of overtime in excess of the guidelines stated in this instruction.

1. Deviations from the overtime guidelines can only be authorized by the Vice President – Turkey Point or designee.
2. The circumstances which justify the extraordinary action shall be documented on an overtime deviation request form. (Attachment 1)
3. A Condition Report shall be initiated and attached to each overtime deviation request form.
4. A copy of the documentation shall be sent to the Vice President – Turkey Point Plant.
5. Each overtime deviation event requires a separate deviation form, unless the initial form specifically states that multiple deviations are expected and the duration of the authorization is clear.

5.8.7 The overtime guidelines apply to the Shift Technical Advisors (STAs) when they are working the Operations Department shift schedule.

5.8.8 The overtime guidelines do not apply to Shift Technical Advisors (STAs) when they are working the STA schedule because it is recognized that the STAs work up to 7 consecutive 12-hour STA shifts (84 hours), excluding shift turnover time, followed by a sufficient rest period.

5.8.9 The Operations, Radiation Protection and Maintenance Department Heads shall perform a periodic independent review of individual overtime to assure that the excessive overtime hours have not been assigned. Routine deviation from the working hour guidelines shall not be authorized.

1. If actual hours worked can NOT be determined, request the gate logs from the Security Manager, Turkey Point or designee for confirmatory information.
2. The appropriate manager shall ensure a Condition Report is generated for any violation of the overtime policy.

END OF TEXT

5.8 Overtime (Tech Spec 6.8.5)

NOTE

PTN Overtime Guidelines allow for the following when determining the total amount of hours an individual may be on-site:

- *Shift turnover time (not to exceed 2 hours per day)*
- *Mealtime (not to exceed 1/2 hour per day)*

5.8.1 The objective of the overtime policy is to prevent situations where fatigue could reduce the ability of operating personnel to keep the reactor in a safe condition. This policy should assure that, to the extent practicable, personnel are not assigned to shift duties while in a fatigued condition that could significantly reduce their mental alertness or their decision-making ability.

5.8.2 The overtime guidelines contained in this instruction shall apply to:

1. All Operations classifications
2. Radiation Protection Technologists
3. Key Maintenance personnel (Personnel responsible for the correct performance of maintenance, repair, modification or calibration of safety-related structures, systems or components, and who are performing or immediately supervising such activities.)

NOTES

- *Step 5.8.3 provides the overtime guidelines for determining the total amount of hours an individual may be on site gate to gate.*
- *A break of at least 8 hours is only applicable when the overtime guidelines are invoked.*
- *Shift turnover time is reserved for administrative tasks supporting exchange of responsibilities from shift to shift. It is not intended to extend time on shift for work in the field, such as hanging clearance tags, performing radiological surveys, or any other type of work.*

5.8.3 In the event that unforeseen problems require substantial amounts of overtime to be used, or during extended periods of shutdown for refueling, major maintenance or major plant modifications, on a temporary basis, the following guidelines shall be followed:

1. An individual **should not be permitted to work more than 16 hours straight** (excluding shift turnover time).

5.8.3 (Cont'd)

2. An individual should not be permitted to work:

   a. More than **16 hours in any** 24 hour period

   NOR

   b. More than **24 hours in any** 48 hour period

   NOR

   c. More than **72 hours in any seven (7) day period,** all excluding shift turnover time.

3. A break of at least 8 hours should be allowed between work periods, including shift turnover time.

NOTE

The following provision is an agreement as worded in the Memorandum of Agreement. The process for authorizing overtime deviations shall be followed if an individual will exceed 72 hours in 7 days.

5.8.4 An individual who is being offered prearranged or call out overtime, who has worked less than or equal to 68 hours in the previous 6-day period, will be eligible for the assignment provided that:

1. Individual will not exceed 84 hours in a 7-day period

AND

2. Individual will not exceed the limits set forth in Substeps 5.8.3.1 through 5.8.3.2.b

5.8.5 The assignment of overtime should be considered on an individual basis and not for an entire staff or crew on a particular shift, except during extended shutdowns.

NOTE

It is the responsibility of each individual to ensure compliance with the overtime policy.

5.8.6 Very unusual circumstances may require the utilization of overtime in excess of the guidelines stated in this instruction.

1. Deviations from the overtime guidelines can only be authorized by the Vice President – Turkey Point or designee.
2. The circumstances which justify the extraordinary action shall be documented on an overtime deviation request form. (Attachment 1)
3. A Condition Report shall be initiated and attached to each overtime deviation request form.
4. A copy of the documentation shall be sent to the Vice President – Turkey Point Plant.
5. Each overtime deviation event requires a separate deviation form, unless the initial form specifically states that multiple deviations are expected and the duration of the authorization is clear.

5.8.7 The overtime guidelines apply to the Shift Technical Advisors (STAs) when they are working the Operations Department shift schedule.

5.8.8 The overtime guidelines do not apply to Shift Technical Advisors (STAs) when they are working the STA schedule because it is recognized that the STAs work up to 7 consecutive 12-hour STA shifts (84 hours), excluding shift turnover time, followed by a sufficient rest period.

5.8.9 The Operations, Radiation Protection and Maintenance Department Heads shall perform a periodic independent review of individual overtime to assure that the excessive overtime hours have not been assigned. Routine deviation from the working hour guidelines shall not be authorized.

1. If actual hours worked can NOT be determined, request the gate logs from the Security Manager, Turkey Point or designee for confirmatory information.
2. The appropriate manager shall ensure a Condition Report is generated for any violation of the overtime policy.

END OF TEXT

Facility:	Turkey Point	Task No:	
Task Title:	Prepare an ECO for 3C Charging Pump	Job Performance Measure No:	A.2 - Equipment Control (RO)
K/A Reference:	G2.2.13 (3.6/3.8)		
Applicant:		NRC Examiner:	
Facility Evaluator:		Date:	

Method of testing: Classroom (Previous)

Simulated Performance Yes Actual Performance

Classroom Yes Simulator Plant

Read to the applicant:

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 1. The 3C Charging Pump has developed a significant leak from the suction stabilizer. Maintenance has requested an "Emergency Repair" tagout to repair the leak. The computer is unavailable for generating ECOs.

Task Standard:

The ECO form is completed to the following criteria:

1. All steps marked as critical on the answer key are included on the applicant's form.
2. The step for rackout of breaker 35008 precedes all other steps requiring manipulation of valves.
3. The correct positions of all components on critical steps are included on the applicant's form.
4. At least one vent path and one drain path are properly identified and tagged.

The following listed items are not critical to completion of this ECO:

1. The order of steps following the rackout step of 35008.
2. Equipment Description and Equipment Location wording do not have to exactly match the answer key.
3. The identification of valve 3-275C as being "Lock" close. "Close" will suffice.

Note that valves with "Danger" tags that are not marked critical on the answer key may be included by the applicant to provide vent and drain paths in preparation for maintenance.

Required Materials:

1. PTN Dwg 5613-M-3047, Sheet 2, "Chemical and Volume Control System Charging and Letdown"
2. 0-ADM-212, "In-Plant Equipment Clearance Orders"
3. 0-ADM-212.1, "Operations In-Plant Equipment Clearance Orders"
4. 3-OP-047, CVCS - Charging and Letdown
5. Blank ECO Form
6. Pencil

General References:

1. PTN Dwg 5613-M-3047, Sh 1, CVCS Charging and Letdown
2. PTN Breaker Book
3. ECO 3-047-0001

Initiating Cue:

The Shift Manager has directed you to generate a clearance (ECO) for the 3C Charging Pump to facilitate repairing the leak on the suction stabilizer. Restoration steps are not required.

NOTES: 1. Access to the computer based ECO generating system (NOMS) is not allowed while performing this task.

2. The only materials that may be made available by computer are plant procedures, breaker book and drawings subject to evaluator approval.

3. Provide copies of Required Materials listed above along with JPM Briefing Sheet.

Time Critical Task: No

Validation Time: 30 minutes

INSTRUCTIONS TO APPLICANT

READ TO APPLICANT:
WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, 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.

HAND JPM BRIEFING SHEET TO APPLICANT AT THIS TIME!

INITIAL CONDITIONS:

The plant is in Mode 1. The 3C Charging Pump has developed a significant leak from the suction stabilizer. Maintenance has requested an "Emergency Repair" tagout to repair the leak. The computer is unavailable for generating ECOs.

INITIATING CUE:

The Shift Manager has directed you to generate a clearance (ECO) for the 3C Charging Pump to facilitate repairing the leak on the suction stabilizer. Restoration steps are not required.

NOTES:
1. **Access to the computer based ECO generating system (NOMS) is not allowed while performing this task.**
2. **Only computer access of plant procedures, breaker book and drawings is allowed subject to evaluator approval.**
3. **Access to or copies of Required Materials listed above shall be provided along with the JPM Briefing Sheet.**

TERMINATION CUE:

When you feel that you have satisfactorily completed the assigned task, hand your JPM briefing sheet back to me.

Do you have any questions?

You may begin.

Denote critical steps with a check mark (✓)

Start Time _____

STEP 1 :	Identify/obtain the necessary reference materials.	____ SAT ____ UNSAT
STANDARDS:	Obtains the requisite reference materials. 1. POD 5613-M-3047, Sheet 2, "Chemical and Volume Control System Charging and Letdown" 2. 0-ADM-212, "In-Plant Equipment Clearance Orders" 3. 0-ADM-212.1, "Operations In-Plant Equipment Clearance Orders" 4. 3-OP-047 5. Blank ECO Form 6. Pencil	

STEP 2 : ✓	Enter 3P201C Control Switch on ECO form.	____ SAT ____ UNSAT
STANDARDS:	1. Enters **"3P201C Control Switch"** in *Equipment ID* Column. 2. Enters **"3C Charging Pump Control Switch"** in *Equipment Description* column. 3. Enters **"Control Room Unit 3 Console"** in *Equipment Location* column. 4. Enters **" - "** in *Tag Serial Number* column. 5. Enters **"Info. Tag"** in *Tag Type* column. 6. Enters value in *Place Seq.* column. 7. Enters **"Hang Info Tag"** in *Place Config.* column.	
NOTES:	*1. Standards 2, 3, 4 and 6 are not critical to this Step.* *2. Entries can be done in any order.* *3. The exact wording shown is not important.*	

STEP 3 : ✓	Enter breaker 35008 on ECO form.	____ SAT ____ UNSAT
STANDARDS:	1. Enters **"35008"** in *Equipment ID* Column. 2. Enters **"480V Breaker (LC 3H) to 3C Charging Pump"** in *Equipment Description* column. 3. Enters **"3H 480V LC - New Electrical Equipment Room "** in *Equipment Location* column. 4. Enters **"1"** in *Tag Serial Number* column. 5. Enters **"Danger"** in *Tag Type* column. 6. Enters value in *Place Seq.* column. 7. Enters **"Rack Breaker Out"** in *Place Config.* column.	
NOTES:	1. *Standards 2, 3 and 4 are not critical to this Step.* 2. *Standard 6 is only critical in that sequence should show breaker 35008 racked out before any ECO boundary valves are closed.* 3. *Entries can be done in any order.* 4. *The exact wording shown is not important.*	

STEP 4 : ✓	Enter valve 3-290 on ECO form	____ SAT ____ UNSAT
STANDARDS:	1. Enters **"3-290"** in *Equipment ID* Column. 2. Enters **"Chg Pmp C Disch Iso Vlv"** in *Equipment Description* column. 3. Enters **"Unit 3 Charging Pump Room"** in *Equipment Location* column. 4. Enters **"2"** in *Tag Serial Number* column. 5. Enters **"Danger"** in *Tag Type* column. 6. Enters value in *Place Seq.* column. 7. Enters **"Close"** in *Place Config.* column.	
NOTES:	1. *Standards 2, 3 and 4 are not critical to this Step.* 2. *Entries can be done in any order.* 3. *The exact wording shown is not important.* 4. *Standard 6 is only critical in that sequence must be after step 3 (rack out breaker) and before step 9 (open vent valve).*	

STEP 5 : ✓	Enter valve 3-291A on ECO form	____ SAT ____ UNSAT
STANDARDS:	1. Enters **"3-291A"** in *Equipment ID* Column. 2. Enters **"Chg Pmp C Disch to Seal Water Inj Iso Vlv"** in *Equipment Description* column. 3. Enters **"Unit 3 Charging Pump Room"** in *Equipment Location* column. 4. Enters **"3"** in *Tag Serial Number* column. 5. Enters **"Danger"** in *Tag Type* column. 6. Enters value in *Place Seq.* column. 7. Enters **"Close"** in *Place Config.* column.	
NOTES:	*1. Standards 2, 3 and 4 are not critical to this Step.* *2. Entries can be done in any order.* *3. The exact wording shown is not important.* *4. Standard 6 is only critical in that sequence must be after step 3 (rack out breaker) and before step 9 (open vent valve).*	

STEP 6 : ✓	Enter valve 3-1317 on ECO form.	____ SAT ____ UNSAT
STANDARDS:	1. Enters **"3-1317"** in *Equipment ID* Column. 2. Enters **"Charging Pump C Recirc Isolation Valve"** in *Equipment Description* column. 3. Enters **"Unit 3 Charging Pump Room"** in *Equipment Location* column. 4. Enters **"4"** in *Tag Serial Number* column. 5. Enters **"Danger"** in *Tag Type* column. 6. Enters value in *Place Seq.* column. 7. Enters **"Close"** in *Place Config.* column.	
NOTES:	*1. Standards 2, 3 and 4 are not critical to this Step.* *2. Entries can be done in any order.* *3. The exact wording shown is not important.* *4. Standard 6 is only critical in that sequence must be after step 3 (rack out breaker) and before step 9 (open vent valve).*	

STEP 7 : ✓	Enter valve 3-275C on ECO form.	____ SAT ____ UNSAT
STANDARDS:	1. Enters **"3-275C"** in *Equipment ID* Column. 2. Enters **"Chg Pmp Relief Line Iso Vlv"** in *Equipment Description* column. 3. Enters **"Unit 3 Charging Pump Room"** in *Equipment Location* column. 4. Enters **"5"** in *Tag Serial Number* column. 5. Enters **"Danger"** in *Tag Type* column. 6. Enters value in *Place Seq.* column. 7. Enters **"Lock Close"** in *Place Config.* column.	
NOTES:	*1. Standards 2, 3 and 4 are not critical to this Step.* *2. Entries can be done in any order.* *3. The exact wording shown is not important.* *4. Standard 6 is only critical in that sequence must be after step 3 (rack out breaker) and before step 9 (open vent valve).*	

STEP 8 : ✓	Enter valve 3-270 on ECO form.	____ SAT ____ UNSAT
STANDARDS:	1. Enters **"3-270"** in *Equipment ID* Column. 2. Enters **"Chg Pmp C Inlet Iso Vlv"** in *Equipment Description* column. 3. Enters **"Unit 3 Charging Pump Room"** in *Equipment Location* column. 4. Enters **"6"** in *Tag Serial Number* column. 5. Enters **"Danger"** in *Tag Type* column. 6. Enters value in *Place Seq.* column. 7. Enters **"Close"** in *Place Config.* column.	
NOTES:	*1. Standards 2, 3 and 4 are not critical to this Step.* *2. Entries can be done in any order.* *3. The exact wording shown is not important.* *4. Standard 6 is only critical in that sequence must be after step 3 (rack out breaker) and before step 9 (open vent valve).*	

STEP 9 : ✓	Enter valve 3-1314 on ECO form.	____ SAT ____ UNSAT
STANDARDS:	1. Enters **"3-1314"** in *Equipment ID* Column. 2. Enters **"Chg Pmp C Suct Stabilizer Vent Iso Vlv"** in *Equipment Description* column. 3. Enters **"Unit 3 Charging Pump Room"** in *Equipment Location* column. 4. Enters **"7"** in *Tag Serial Number* column. 5. Enters **"Danger"** in *Tag Type* column. 6. Enters value in *Place Seq.* column. 7. Enters **"Open"** in *Place Config.* column.	
NOTES:	*1. Standards 2, 3, 4 are not critical to this Step.* *2. Entries can be done in any order.* *3. The exact wording shown is not important.* *4. It is critical that one vent path be danger tagged open. Either steps 9 & 10 OR 11 & 12 must be performed to establish a vent path.* *5. Standard 6 is only critical in that sequence must reflect that this step must occur after steps 2 through 8 have been completed.*	

STEP 10 : ✓	Enter valve 3-3411C on ECO form.	____ SAT ____ UNSAT
STANDARDS:	1. Enters **"3-3411C"** in *Equipment ID* Column. 2. Enters **"Charging Pump C Suction Stabilizer Vent"** in *Equipment Description* column. 3. Enters **"Unit 3 Charging Pump Room"** in *Equipment Location* column. 4. Enters **"8"** in *Tag Serial Number* column. 5. Enters **"Danger"** in *Tag Type* column. 6. Enters value in *Place Seq.* column. 7. Enters **"Open"** in *Place Config.* column.	
NOTES:	*1. Standards 2, 3, 4 and 6 are not critical to this Step.* *2. Entries can be done in any order.* *3. The exact wording shown is not important.* *4. It is critical that one vent path be danger tagged open. Either steps 9 & 10 OR 11 & 12 must be performed to establish a vent path.* *5. Standard 6 is only critical in that sequence must reflect that this step must occur after steps 2 through 8 have been completed.*	

STEP 11 : ✓	Enter valve 3-276C on ECO form.	____ SAT ____ UNSAT
STANDARDS:	1. Enters **"3-276C"** in *Equipment ID* Column. 2. Enters **"Chg Pmp C Disch PI-153 Root Vlv"** in *Equipment Description* column. 3. Enters **"Unit 3 Charging Pump Room"** in *Equipment Location* column. 4. Enters **"9"** in *Tag Serial Number* column. 5. Enters **"Danger"** in *Tag Type* column. 6. Enters value in *Place Seq.* column. 7. Enters **"Open"** in *Place Config.* column.	
NOTES:	1. *Standards 2, 3, 4 and 6 are not critical to this Step.* 2. *Entries can be done in any order.* 3. *The exact wording shown is not important.* 4. *It is critical that one vent path be danger tagged open. Either steps 9 & 10 OR 11 & 12 must be performed to establish a vent path.* 5. *Standard 6 is only critical in that sequence must reflect that this step must occur after steps 2 through 8 have been completed.*	

STEP 12 : ✓	Enter valve 3-276F on ECO form.	____ SAT ____ UNSAT
STANDARDS:	1. Enters **"3-276F"** in *Equipment ID* Column. 2. Enters **"Chg Pmp C Disch Line Vnt Vlv"** in *Equipment Description* column. 3. Enters **"Unit 3 Charging Pump Room"** in *Equipment Location* column. 4. Enters **"10"** in *Tag Serial Number* column. 5. Enters **"Danger"** in *Tag Type* column. 6. Enters value in *Place Seq.* column. 7. Enters **"Open"** in *Place Config.* column.	
NOTES:	*1. Standards 2, 3, 4 and 6 are not critical to this Step.* *2. Entries can be done in any order.* *3. The exact wording shown is not important.* *4. It is critical that one vent path be danger tagged open. Either steps 9 & 10 OR 11 & 12 must be performed to establish a vent path.* *5. Standard 6 is only critical in that sequence must reflect that this step must occur after steps 2 through 8 have been completed.*	

STEP 13 :	Enter 3-270B drain line on ECO form.	____ SAT ____ UNSAT
STANDARDS:	1. Enters **"3-270B Hose"** in *Equipment ID* Column. 2. Enters **"Chg Pmp C Suct Stabilizer Drain Hose"** in *Equipment Description* column. 3. Enters **"Unit 3 Charging Pump Room"** in *Equipment Location* column. 4. Enters **" - "** in *Tag Serial Number* column. 5. Enters **"No Tag"** in *Tag Type* column. 6. Enters value in *Place Seq.* column. 7. Enters **"Remove Cap, Install Hose"** in *Place Config.* column.	
NOTES:	*1. Entries can be done in any order.* *2. The exact wording shown is not important.*	

STEP 14 :	Enter valve 3-270B throttled on ECO form.	____ SAT ____ UNSAT
STANDARDS:	1. Enters **"3-270B Throttle"** in *Equipment ID* Column. 2. Enters **"3C Chrg Pump Suct Stab Drn"** in *Equipment Description* column. 3. Enters **"Unit 3 Charging Pump Room"** in *Equipment Location* column. 4. Enters **" - "** in *Tag Serial Number* column. 5. Enters **"No Tag"** in *Tag Type* column. 6. Enters value in *Place Seq.* column. 7. Enters **"Throttle"** in *Place Config.* column. 8. Enters **"Open slowly, don't exceed capacity of drain system"**	
NOTES:	*1. Entries can be done in any order.* *2. The exact wording shown is not important.*	

STEP 15 : ✓	Enter valve 3-270B on ECO form.	____ SAT ____ UNSAT
STANDARDS:	1. Enters **"3-270B"** in *Equipment ID* Column. 2. Enters **"Chg Pmp C Suct Stabilizer Drain Valve"** in *Equipment Description* column. 3. Enters **"Unit 3 Charging Pump Room"** in *Equipment Location* column. 4. Enters **"11"** in *Tag Serial Number* column. 5. Enters **"Danger"** in *Tag Type* column. 6. Enters value in *Place Seq.* column. 7. Enters **"Open"** in *Place Config.* column.	
NOTES:	*1. Standards 2, 3 and 4 are not critical to this Step.* *2. Entries can be done in any order.* *3. The exact wording shown is not important.* *4. Standard 6 is critical only in that it must show this ECO step occurring after the tags for ECO boundary valves and 3C Charging Pump breaker have been hung. The exact number is not critical.*	

Termination Cue:	Applicant returns all completed materials.	**STOP**

Stop Time _____

Verification of Completion

Job Performance Measure No. A.2 - Equipment Control

Applicant's Name: _____

Examiner's Name: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Question Documentation:

Question:

_____

_____

_____

_____

_____

Response:

_____

_____

_____

_____

_____

Result: Satisfactory/Unsatisfactory

Examiner's signature and date: _____ _____

JPM BRIEFING SHEET

INITIAL CONDITIONS:

The plant is in Mode 1. The 3C Charging Pump has developed a significant leak from the suction stabilizer. Maintenance has requested an "Emergency Repair" tagout to repair the leak. The computer is unavailable for generating ECOs.

INITIATING CUE:

The Shift Manager has directed you to generate a clearance (ECO) for the 3C Charging Pump to facilitate repairing the leak on the suction stabilizer. Restoration steps are not required.

NOTE: Access to the computer based ECO generating system (NOMS) is not allowed while performing this task.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU FEEL THAT YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

ECO FORM

TAG HANG LIST FOR ECO

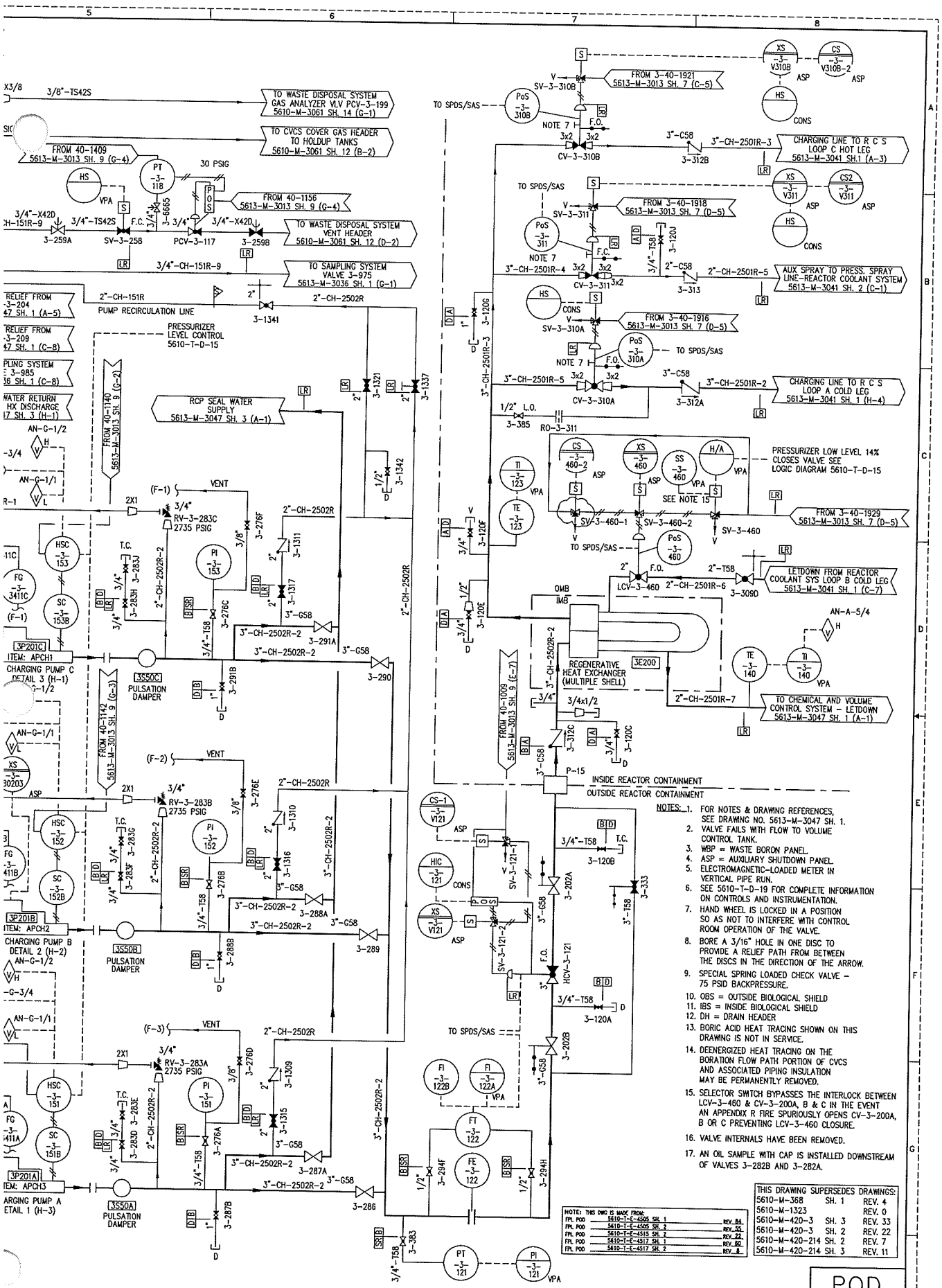
Equipment ID	Equipment Description	Equipment Location	Tag Serial Number	Tag Type	Place Seq	Place Config	1st	2nd	Notes

ECO FORM - ANSWER KEY

TAG HANG LIST FOR ECO

Equipment ID	Equipment Description	Equipment Location	Tag Serial Number	Tag Type	Place Seq	Place Config	1st	2nd	Notes
3P201C Control Switch	3C CHG PP CNTRL SW	UNIT 3 CONTROL ROOM CONSOLE		INFO TAG	1	HANG INFO TAG			
35008	480V BKR (LC 3H) TO CHG PMP 3C (3P201C)	NEW ELECTRICAL EQUIPMENT ROOM	1	DANGER	2	RACK BREAKER OUT			
3-290	CHG PMP C DISCH ISO VLV	UNIT 3 CHARGING PUMP ROOM	2	DANGER	3	CLOSE			
3-291A	CHG PMP C DISCH TO SEAL WTR INJ ISO VLV	UNIT 3 CHARGING PUMP ROOM	3	DANGER	4	CLOSE			
3-1317	CHARGING PUMP C RECIRC ISOLATION VALVE	UNIT 3 CHARGING PUMP ROOM	4	DANGER	5	CLOSE			
3-275C	CHG PMP C RELIEF LINE ISO VLV	UNIT 3 CHARGING PUMP ROOM	5	DANGER	6	LOCK CLOSE			
3-270	CHG PMP C INLET ISO VLV	UNIT 3 CHARGING PUMP ROOM	6	DANGER	7	CLOSE			
3-1314 *	CHG PMP C SUCT STABLIZER VENT ISO VLV	UNIT 3 CHARGING PUMP ROOM	7	DANGER	8	OPEN			
3-3411C *	CHARGING PUMP C SUCTION STABILIZER VENT	UNIT 3 CHARGING PUMP ROOM	8	DANGER	9	OPEN			
3-276C **	CHG PMP C DISCH PI-153 ROOT VLV	UNIT 3 CHARGING PUMP ROOM	9	DANGER	10	OPEN			
3-276F **	CHG PMP C DISCH LINE VNT VLV	UNIT 3 CHARGING PUMP ROOM	10	DANGER	11	OPEN			
3-270B - HOSE	CHG PMP C SUCT STABILIZER DRAIN HOSE	UNIT 3 CHARGING PUMP ROOM	-	NO TAG	12	REM CAP INS HOSE			
3-270B - THROTTLE	CHG PMP C SUCT STABLIZER DRAIN	UNIT 3 CHARGING PUMP ROOM	-	NO TAG	13	THROTTLE			
3-270B ***	CHG PMP C SUCT STABLIZER DRAIN VALVE	UNIT 3 CHARGING PUMP ROOM	11	DANGER	14	OPEN			

*** At least one vent path (*,**) and one drain path (***) must be properly identified. Any vent or drain path is allowable and is critical.**



NOTES:
1. FOR NOTES & DRAWING REFERENCES, SEE DRAWING NO. 5613-M-3047 SH. 1.
2. VALVE FAILS WITH FLOW TO VOLUME CONTROL TANK.
3. WBP = WASTE BORON PANEL.
4. ASP = AUXILIARY SHUTDOWN PANEL.
5. ELECTROMAGNETIC-LOADED METER IN VERTICAL PIPE RUN.
6. SEE 5610-T-D-19 FOR COMPLETE INFORMATION ON CONTROLS AND INSTRUMENTATION.
7. HAND WHEEL IS LOCKED IN A POSITION SO AS NOT TO INTERFERE WITH CONTROL ROOM OPERATION OF THE VALVE.
8. BORE A 3/16" HOLE IN ONE DISC TO PROVIDE A RELIEF PATH FROM BETWEEN THE DISCS IN THE DIRECTION OF THE ARROW.
9. SPECIAL SPRING LOADED CHECK VALVE - 75 PSID BACKPRESSURE.
10. OBS = OUTSIDE BIOLOGICAL SHIELD
11. IBS = INSIDE BIOLOGICAL SHIELD
12. DH = DRAIN HEADER
13. BORIC ACID HEAT TRACING SHOWN ON THIS DRAWING IS NOT IN SERVICE.
14. DEENERGIZED HEAT TRACING ON THE BORATION FLOW PATH PORTION OF CVCS AND ASSOCIATED PIPING INSULATION MAY BE PERMANENTLY REMOVED.
15. SELECTOR SWITCH BYPASSES THE INTERLOCK BETWEEN LCV-3-460 & CV-3-200A, B & C IN THE EVENT AN APPENDIX R FIRE SPURIOUSLY OPENS CV-3-200A, B OR C PREVENTING LCV-3-460 CLOSURE.
16. VALVE INTERNALS HAVE BEEN REMOVED.
17. AN OIL SAMPLE WITH CAP IS INSTALLED DOWNSTREAM OF VALVES 3-282B AND 3-282A.

NOTE: THIS DWG IS MADE FROM:		
FPL POD	5610-T-E-4505 SH. 1	REV. 84
FPL POD	5610-T-E-4505 SH. 2	REV. 55
FPL POD	5610-T-E-4515 SH. 2	REV. 22
FPL POD	5610-T-E-4517 SH. 1	REV. 60
FPL POD	5610-T-E-4517 SH. 2	REV. 8

THIS DRAWING SUPERSEDES DRAWINGS:		
5610-M-368	SH. 1	REV. 4
5610-M-1323		REV. 0
5610-M-420-3	SH. 3	REV. 33
5610-M-420-3	SH. 2	REV. 22
5610-M-420-214	SH. 2	REV. 7
5610-M-420-214	SH. 3	REV. 11

POD

REVISION	BY	CH	APP	APP
UILT PER CRN M-11984 (PC/M 06-108).	RH	RV	LG	–
UILT PER CRN-I-4476 (PC/M 03-106).	RH	JPG	–	PDS
UILT PER CRN M-11551 (PC/M 02-053).	RH	BB	BSG	ASD
UILT PER CRN M-11735 (PC/M 03-106).	RH	RV	AAP	PRB
EATED PER THE P & ID RECONSTITUTION PROJECT SCOPE	MAB	MD	RAS SVM	LRB
INTO THE FPL DWG SYSTEM PER DCR-TPM-91-045.	—	—	—	—

FPL

TURKEY POINT NUCLEAR UNIT 3

P & I D

CHEMICAL AND VOLUME CONTROL SYSTEM
CHARGING AND LETDOWN

STONE & WEBSTER ENGINEERING CORP.
FT. LAUDERDALE, FLORIDA

DRAWING NUMBER 5613-M-3047

SYS 047

SHEET 2

REV 49

5613-M-3047_SH 2

Facility:	Turkey Point	Task No:	
Task Title:	Review ECO for 3C Charging Pump	Job Performance Measure No:	A.2 - Equipment Control (SRO)
K/A Reference:	G2.2.13 (3.6/3.8)		
Applicant:		NRC Examiner:	
Facility Evaluator:		Date:	
Method of testing:	Classroom (New)		
Simulated Performance	Yes	Actual Performance	
Classroom	Yes	Simulator	Plant

Read to the applicant:

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:

1. The plant is in Mode 1.
2. The 3C Charging Pump has developed a significant leak from the suction stabilizer.
3. Maintenance has requested an "Emergency Repair" tagout to repair the leak.
4. The computer is unavailable for generating ECOs
5. An RO assigned to the Work Control Center has prepared an ECO for your review.

Task Standard:

1. Review and identify the four errors in the 3C Charging Pump suction stabilizer ECO provided for review and approval.

Required Materials:

1. Proposed ECO for 3C Charging Pump suction stabilizer
2. PTN Dwg 5613-M-3047, Sheet 2, "Chemical and Volume Control System Charging and Letdown"
3. 0-ADM-212, "In-Plant Equipment Clearance Orders"
4. 0-ADM-212.1, "Operations In-Plant Equipment Clearance Orders"
5. 3-OP-047, CVCS - Charging and Letdown

General References:

1. PTN Dwg 5613-M-3047, Sh 1, CVCS Charging and Letdown
2. PTN Breaker Book
3. ECO 3-047-0001

Initiating Cue:

Review the proposed 3C Charging Pump suction stabilizer repair ECO for issuance.

Time Critical Task: No

Validation Time: 10 minutes

INSTRUCTIONS TO APPLICANT

READ TO APPLICANT:
WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, 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.

HAND JPM BRIEFING SHEET TO APPLICANT AT THIS TIME!

INITIAL CONDITIONS:

1. The plant is in Mode 1.
2. The 3C Charging Pump has developed a significant leak from the suction stabilizer.
3. Maintenance has requested an "Emergency Repair" tagout to repair the leak.
4. The computer is unavailable for generating ECOs
5. An RO assigned to the Work Control Center has prepared an ECO for your review.

INITIATING CUE:

Review the proposed 3C Charging Pump suction stabilizer repair ECO for issuance.

NOTE: Provide a copy of the proposed ECO for 3C Charging Pump suction stabilizer repair along with JPM Briefing Sheet.

TERMINATION CUE:

When you feel that you have satisfactorily completed the assigned task, hand your JPM briefing sheet back to me.

Do you have any questions?

You may begin.

Denote critical steps with a check mark (✓)

Start Time _____

STEP 1 :	Obtain & review proposed ECO for 3C Charging Pump suction stabilizer repair	___ SAT ___ UNSAT
STANDARDS:	Obtain & review proposed ECO for 3C Charging Pump suction stabilizer repair	
NOTES:	*Examiner provides a copy of the proposed ECO for 3C Charging Pump suction stabilizer repair along with JPM Briefing Sheet.*	

STEP 2 : ✓	Identify errors in the proposed ECO for 3C Charging Pump suction stabilizer repair provided.	___ SAT ___ UNSAT
STANDARDS:	Identifies the following errors in the proposed ECO for 3C Charging Pump suction stabilizer repair provided: 1. Breaker 35008 not tagged open until after pump isolation valves closed. Breaker should be tagged open before isolating pump. 2. Valve number 3-269 for 3C Charging Pump inlet isolaton valve incorrect. Correct valve number is 3-270. 3. No vent path provided within clearance boundary. Should danger tag either of the following pairs of valves open: 3-1314, Chg Pmp C Suct Stabilizer Vent Iso Vlv **AND** 3-3411C, Charging Pump C Suction Stabilizer Vent **OR** 3-276C, Chg Pmp C Disch PI-153 Root Vlv **AND** 3-276F, Chg Pmp C Disch Line Vnt Vlv	

Termination Cue:	Applicant completes reviewing the proposed ECO for 3C Charging Pump suction stabilizer repair, identifies errors and/or returns the Worksheet and JPM Briefing Sheet to Examiner.	**STOP**

Stop Time _____

Verification of Completion

Job Performance Measure No. A.2 – Equipment Control (SRO)

Applicant's Name: _____

Examiner's Name: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Question Documentation:

Question:

_____

_____

_____

_____

_____

Response:

_____

_____

_____

_____

_____

Result: Satisfactory/Unsatisfactory

Examiner's signature and date: _____ _____

JPM BRIEFING SHEET

INITIAL CONDITIONS:

1. The plant is in Mode 1.
2. The 3C Charging Pump has developed a significant leak from the suction stabilizer.
3. Maintenance has requested an "Emergency Repair" tagout to repair the leak.
4. The computer is unavailable for generating ECOs
5. An RO assigned to the Work Control Center has prepared an ECO for your review.

INITIATING CUE:

Review the proposed 3C Charging Pump suction stabilizer repair ECO for issuance.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU FEEL THAT YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

ECO FORM

TAG HANG LIST FOR ECO

Equipment ID	Equipment Description	Equipment Location	Tag Serial Number	Tag Type	Place Seq	Place Config	1st	2nd	Notes
3P201C Control Switch	3C CHG PP CNTRL SW	UNIT 3 CONTROL ROOM CONSOLE		INFO TAG	1	HANG INFO TAG			
3-290	CHG PMP C DISCH ISO VLV	UNIT 3 CHARGING PUMP ROOM	1	DANGER	2	CLOSE			
3-291A	CHG PMP C DISCH TO SEAL WTR INJ ISO VLV	UNIT 3 CHARGING PUMP ROOM	2	DANGER	3	CLOSE			
3-1317	CHARGING PUMP C RECIRC ISOLATION VALVE	UNIT 3 CHARGING PUMP ROOM	3	DANGER	4	CLOSE			
3-275C	CHG PMP C RELIEF LINE ISO VLV	UNIT 3 CHARGING PUMP ROOM	4	DANGER	5	LOCK CLOSE			
3-269	CHG PMP C INLET ISO VLV	UNIT 3 CHARGING PUMP ROOM	5	DANGER	6	CLOSE			
35008	480V BKR (LC 3H) TO CHG PMP 3C (3P201C)	NEW ELECTRICAL EQUIPMENT ROOM	6	DANGER	7	RACK BREAKER OUT			
3-270B - HOSE	CHG PMP C SUCT STABILIZER DRAIN HOSE	UNIT 3 CHARGING PUMP ROOM	-	NO TAG	10	REM CAP INS HOSE			
3-270B - THROTTLE	CHG PMP C SUCT STABLIZER DRAIN	UNIT 3 CHARGING PUMP ROOM	-	NO TAG	11	THROTTLE			
3-270B	CHG PMP C SUCT STABLIZER DRAIN VALVE	UNIT 3 CHARGING PUMP ROOM	9	DANGER	12	OPEN			

ECO FORM - ANSWER KEY

TAG HANG LIST FOR ECO

Equipment ID	Equipment Description	Equipment Location	Tag Serial Number	Tag Type	Place Seq	Place Config	1st	2nd	Notes
3P201C Control Switch	3C CHG PP CNTRL SW	UNIT 3 CONTROL ROOM CONSOLE		INFO TAG	1	HANG INFO TAG			
3-290	CHG PMP C DISCH ISO VLV	UNIT 3 CHARGING PUMP ROOM	1	DANGER	2	CLOSE			
3-291A	CHG PMP C DISCH TO SEAL WTR INJ ISO VLV	UNIT 3 CHARGING PUMP ROOM	2	DANGER	3	CLOSE			
3-1317	CHARGING PUMP C RECIRC ISOLATION VALVE	UNIT 3 CHARGING PUMP ROOM	3	DANGER	4	CLOSE			
3-275C	CHG PMP C RELIEF LINE ISO VLV	UNIT 3 CHARGING PUMP ROOM	4	DANGER	5	LOCK CLOSE			
3-269	CHG PMP C INLET ISO VLV	UNIT 3 CHARGING PUMP ROOM	5	DANGER	6	CLOSE	Valve number is incorrect. Should be 3-270. 3-269 is inlet ioslation valve for B Charging Pump.		
35008	480V BKR (LC 3H) TO CHG PMP 3C (3P201C)	NEW ELECTRICAL EQUIPMENT ROOM	6	DANGER	7	RACK BREAKER OUT	Racking breaker is out of sequence. Should be racked out before closing any isolation valves.		
3-270B - HOSE	CHG PMP C SUCT STABILIZER DRAIN HOSE	UNIT 3 CHARGING PUMP ROOM	-	NO TAG	10	REM CAP INS HOSE			
3-270B - THROTTLE	CHG PMP C SUCT STABLIZER DRAIN	UNIT 3 CHARGING PUMP ROOM	-	NO TAG	11	THROTTLE			
3-270B	CHG PMP C SUCT STABLIZER DRAIN VALVE	UNIT 3 CHARGING PUMP ROOM	9	DANGER	12	OPEN			

Need to add a vent path within the clearance boundary. Since work is on the suction stabilizer, the preferred path would be to danger tag open 3-1314 & 3-3411C. An acceptable alternate vent path would be to danger tag open 3-276C & 3-267F on the discharge side of the charging pump within the ECO boundary.

Florida Power & Light Company

Turkey Point Nuclear Plant

This procedure may be affected by an O.T.S.C. (On The Spot Change) verify information prior to use
Date verified_____ Initials_____

0-ADM-212

A.2-SRO

In-Plan

Responsible De ty
Revision Approv
Periodic Review

RTSs *90-1964P, 9*
91-0238, 91-0820,
92-1134P, 92–1534, , 93-1316,
93-1598, 94–0282, 9 , 94-1015, 94-1312,
94-1130P, 94–1462P, 95-0294, 95-1142, 95-1319, 96-0902,
96-0896, 96–1309, 96-1449, 97-0296, 97-0317, 97-0842, 98-0045,
98-1106, 99–0278, 99-0532P, 99-1034, 00-0546P, 00-0694P, 01-0426P,
02-0070P, 02-0581P, 03-0380P, 04-0104P, 04-0761P, 05-0689,
06-0894P
OTSCs *8917, 10809, 10848, 0090-93, 0156-93, 0429-93*

W97:JM/ms/dw/ab

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21	08/31/05		

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1.0 PURPOSE

NOTE

When Division Load Dispatcher clearances are necessary such as a generator clearance, employees shall refer to the proper Corporate Clearance Procedure.

1.1 This procedure provides guidance in the use of in-plant Equipment Clearance Orders (ECOs) for the isolation of equipment to protect personnel from energy sources, when possible, for the use of other controls when isolation is not possible and for administrative control of equipment. Use of this in-plant clearance procedure is only for clearances that do not require a Division Load Dispatcher's clearance.

1.1.1 Compliance with this procedure provides a safe working environment for personnel and equipment. Changes to this procedure shall be reviewed by the Nuclear Division Joint Safety Committee (NJSC).

2.0 REFERENCES/RECORDS REQUIRED/COMMITMENT DOCUMENTS

2.1 References

2.1.1 Quality Instructions/Plant Procedures

1. QI 17-PTN-1, Quality Assurance Records
2. 0-ADM-016.3, Fire Protection Impairments (FPI)
3. 0-ADM-031, Independent Verification
4. 0-ADM-200, Conduct of Operations
5. 0-ADM-205, Administrative Control of Valves, Locks and Switches
6. 0 ADM-212.1, Operations In-Plant Equipment Clearance Orders
7. 0-ADM-213, Technical Specification Related Equipment and Risk Significant SSC Out-of-Service Logbook
8. 0-ADM-222, Drain and Vent Rig Controls
9. 0-ADM-701, Control of Plant Work Activities
10. 0-ADM-715, Maintenance Procedure Usage and Conduct of Maintenance
11. 0-ADM-731, Plant Maintenance Support Equipment Clearance
12. 0-ADM-737, Post Maintenance Testing
13. 0-ADM-739, FIN Team Tool Pouch and Minor Maintenance Activities
14. 0-OSP-200.1, Schedule of Periodic Tests, Checks and Calibrations

2.1.2 Regulatory Guidelines

1. 10 CFR 50, Appendix B, Criterion XIV, Inspection, Test and Operating Status
2. NUREG 0737
3. OSHA Standard 29 CFR 1910.269, Electrical Power Generation

2.1.3 Miscellaneous Documents (i.e., PC/M, Correspondence)

NOTE

See Section 7 of FPL's Safe Work Practices Manual for instructions on a dispatcher's clearance

1. PSL ADM-09.04, In-Plant Equipment Clearance Orders
2. FPL Safe Work Practices Manual

2.2 Records Required

2.2.1 Completed copies of the below listed item(s) constitute Quality Assurance records and shall be transmitted to QA Records for retention in accordance with Quality Assurance Records Program requirements:

1. None

2.2.2 Completed copies of the Joint Safety Committee (JSC) Review Form (similar to Attachment 9) should be routed to Safety Department for record keeping.

2.3 Commitment Documents

2.3.1 PTN-ENG-SEMS-96-070, Biocide Treatment of Closed Cooling Water Systems

2.3.2 NIR 88-07, Failure to Maintain Clearance on Non-SEISMIC Gauges

2.3.3 PTN-PMN-88-313, CAR 88-016, dated June 16, 1988, Temporary Lifts Being Abused

3.0 RESPONSIBILITIES

3.1 Department Heads

3.1.1 Ensure department personnel who may be using this procedure are trained and tested on this procedure and comply with the procedure requirements.

3.1.2 Provide the Operations Work Control Center Supervisor (WCCS) with the names of all department personnel authorized to be clearance order controllers/holders.

3.2 Shift Manager (or SRO Designee/Unit Supervisor/WCCS)

3.2.1 Approve ECO Boundary Modifications.

3.2.2 Verify the adequacy of the ECO boundaries.

3.2.3 Authorize all ECOs.

3.2.4 Resolve ECO discrepancies in the field.

3.3 Electrical Department Personnel

3.3.1 Install and remove electrical grounds.

3.3.2 Identify to Operations the actual location of grounds to be installed.

3.3.3 Sign the ECO when grounds have been removed. This shall be independently verified by an Electrical Supervisor, or General Maintenance Leader.

3.4 ECO Controller

3.4.1 Perform all of the responsibilities of a Controller as outlined in Section 5.0 of this procedure.

3.4.2 During outages the responsibilities of a Controller should be limited to a single discipline.

3.4.3 Track any Boundary Modification for the purpose of testing and within 5 days of their execution, and if no longer needed, ensure that either:

1. The ECO boundary is restored as necessary or,
2. The ECO is released [Commitment - Steps 2.3.2 and 2.3.3]

3.5 General Maintenance Leader/Supervisor Holding an ECO

3.5.1 Ensure the safety of personnel and the protection of property by complying with this procedure.

3.6 All Personnel Working Under an ECO

3.6.1 Shall comply with the ECO process to ensure personnel and equipment safety.

3.6.2 Prior to beginning work, verify that the Holder has signed the acceptance signature electronically.

3.6.3 Verification of the ECO shall include an actual inspection of those clearance tags necessary to ensure safe isolation of the component being worked.

3.7 Training Manager

3.7.1 Provide initial training on this procedure for all employees who perform service or maintenance on machines or equipment that require a clearance order.

3.7.2 Provide pre-implementation training on this procedure whenever there is a change in the procedure that affects safety.

3.7.3 Provide annual training on this procedure for those that perform services or maintenance on machines or equipment that require an ECO and require students to demonstrate proficiency.

3.7.4 Maintain records of all qualified clearance order controllers/holders.

3.8 Chemistry Department Supervisor

NOTE

The determination that biocides are NOT present in a system may be determined by the system history (no biocides have been added), previously obtained acceptable sample results (no biocides have been added since last acceptable sample), or by determining that current samples DO NOT contain biocides above acceptable levels (biocides have been added to the system and a previous sample has NOT shown acceptable concentrations of biocides needed for personnel safety or liquid releases).

3.8.1 When requested, the Chemistry Supervisor determines if a biocide (personnel safety or release) hazard exist prior to the authorization of a clearance. [Commitment - Step 2.3.1]

3.8.2 The Chemistry Supervisor shall notify the requester of the results of the biocide determination and whether or NOT the system is safe for draining. [Commitment - Step 2.3.1]

3.9 Safety Supervisor

3.9.1 Ensure that an annual evaluation is conducted and documented to verify plant personnel that use this procedure are trained in the purpose and use of this procedure.

3.9.2 Results of the annual evaluations shall be provided to the Training Manager for incorporation into the annual training of the ECO process.

4.0 DEFINITIONS

4.1 Bus Outage Tag – a device or method that allows the Bus Outage Clearance ECO jurisdiction over the individual ECO isolation tags at breakers. Information is provided at the individual breakers to inform Holders that the electrical isolation for individual clearances is provided by the Bus Clearance.

4.2 Caution Tag - A tag used to identify conditions that are unusual or potentially hazardous to provide precautionary information for operating equipment under conditions that do not require a danger tag. Equipment governed by a caution tag can be manipulated with SRO approval.

4.3 Concurrent Dual Verification (CDV) – Concurrent Dual Verification is the verification of operations, testing, and maintenance activities that is performed concurrent with the activity by a second individual. CDV is a preferred alternative to an Independent Verification where an IV is impractical or where immediate potential adverse affects to the plant would occur if the component were incorrectly positioned. CDV incorporates and depends upon good three-part communication and peer checking. Instances where CDV would be preferred to an IV include but are not limited to, throttling a valve and testing, calibrations, or lineups that are done utilizing the procedure in the **reader/doer** mode.

4.4 ECO Boundary Modification-An ECO Boundary Modification is a change that expands or reduces an existing clearance boundary to facilitate maintenance or testing.

4.5 ECO Boundary Modification Form - A form used to list the proposed boundary changes and to document the approval to perform these changes.

4.6 Equipment Clearance Order (ECO) - A formal order for administrative control on plant components and/or systems, delineating the method for configuring plant equipment where isolation is possible, or for control of system parameters (i.e., level, pressure) where isolation is not possible, which permits safe entry for construction, testing, maintenance or inspection.

4.7 ECO Controller (Person in Charge) - Clearance Controllers are employees to whom clearances are issued. They are responsible for requesting, accepting/releasing and ensuring proper boundaries of clearances on plant equipment. In order for an individual to be considered qualified, they shall have a working knowledge of that classification, and shall have attended and successfully completed an approved training course on the ECO process. Licensed operators meet this qualification criteria.

4.8 ECO Form – An electronic/paper form signed electronically by the ECO Controller and ECO Holders to document their verification of the adequacy of the ECO boundary. In the event of computer failure, handwritten verification can be used.

4.9 ECO Holder

4.9.1 An individual who is authorized and qualified to work or support work within an ECO boundary. In order for an individual to be considered qualified, they shall have attended and successfully completed an approved training course on the ECO process.

4.9.2 For Contract Personnel, a Contractor Supervisor who meets the training requirements, may be the ECO Controller/Holder.

4.10 ECO Information Tag - A tag hung on an electrical hand switch or a valve control switch to indicate its associated equipment is located within an ECO boundary.

4.11 ECO Release - Occurs when all ECO holders/controller release their right to work and their right to protection within the ECO boundary by signing in the ECO Release section of all applicable ECO Controller/Holder Forms.

4.12 ECO Revision- A modification to an existing ECO that does not alter the existing ECO Isolation boundary but could enhance the ECO boundary in the conservative direction to increase worker safety.

4.13 ECO Tag - A tag hung on all boundary points which isolate equipment from sources of energy to permit work to be performed safely. (See example of tags in Attachments 5, 6 and 7)

4.14 Independent Verification (IV) – Independent Verification is the verification of operations, testing and maintenance activities on systems or components independent of the personnel initially performing the activity. IV is to be performed without the aid or coaching from the person initially performing the activity. The Independent verification process is a tool used to assure, with great certainty an action will be / or has been performed correctly.

4.15 Master ECO - A previously researched ECO stored in the computer database.

4.16 MOV Test Tag - A tag issued for Motor Operated Valves to give personnel protection for MOV maintenance and testing.

4.17 Outage Controller/ECO Coordinator – An individual may be appointed when the number of personnel and/or clearances are above normal. This Coordinator shall be qualified in In-Plant Clearances Requirements. The Coordinator will assume the responsibilities of a Controller for all work assigned to an outage zone clearance and act as a liaison between Operations and the individual department Controllers and Holders. License operators meet this qualification criteria.

4.18 Tag Type Hierarchy – Tags associated with equipment clearance orders have a specific hierarchy that must be adhered to. It is possible that more than one tag type may be assigned to a plant component at the same time. The position of the component is controlled by the tag type in the following order:

4.18.1 Danger Tag- This tag controls the position of any component. The position of the component may not be altered in any way with the exception of those danger tags properly controlled under a bus outage tag.

4.18.2 Bus Outage Tag- This tag when properly authorized may transfer jurisdiction of a component under a danger tag to the established boundaries of a bus outage clearance.

4.18.3 MOV Test Tag- This tag gives the personnel holding the clearance authority to manipulate the tagged component, provided permission has been obtained by an SRO prior to manipulation..

4.18.4 Caution Tag- A caution tag is used to identify conditions that are unusual or potentially hazardous or to provide cautionary information for operating equipment under conditions that do not require a danger tag. Caution tags can be manipulated with Shift Manager/WCCS approval.

4.18.5 Information Tag- This tag provides information only and does not control the position of the component.

4.19 Zone ECO - An ECO which encompasses an entire system or a portion of a system for multiple components to be worked.

5.0 PROCEDURE

CAUTIONS

- ***ECO tags are warning devices affixed to energy isolating equipment and do NOT in themselves provide a physical restraint.***
- ***ECO tags shall be hung or removed only by Operations personnel.***
- ***Personnel NOT trained on this procedure shall NOT perform work under a Clearance Order.***
- ***Personnel shall NOT manipulate components unless specifically authorized by approved plant procedures or in accordance with 0-ADM-701, Control of Plant Work Activities.***
- ***Work shall NOT begin each day until required crew personnel verify a proper clearance exists and that the Clearance Controllers (GML/Supervisor's) signature is on the ECO Control Form.***
- ***An ECO shall NOT be utilized as a means of bypassing procedural requirements.***

5.1 Exempt Equipment

NOTE

0-ADM-731, Plant Maintenance Support Equipment Clearance Procedure and 0-ADM-739, FIN Team Tool Pouch and Minor Maintenance Activities, are the reference for areas and activities exempted from this procedure.

5.1.1 Equipment used solely for maintenance and support activities and minor maintenance activities that utilize FIN tagging as defined in 0-ADM-739, FIN Team Tool Pouch and Minor Maintenance Activities, may be exempted from this procedure.

1. Examples of this type of equipment are:

   a. Power and lighting panels in the service buildings, store rooms, warehouses, machine shops, offices, laboratories and work shops;

   b. Shop cranes and hoists;

   c. Plumbing shutoff valves;

   d. Gas bottle valves - used by Maintenance, Radiation Protection, or Chemistry;

   e. AC unit disconnects (except Control Room AC or Tech Support Center AC disconnects) located in the power block are also included with the approval of the SRO.

5.1.2 The configuration control on this type equipment is the responsibility of the Maintenance Supervisor, Foreman, General Maintenance Leader, FIN Team Leader and is covered by a separate procedure.

5.2 Standard Equipment Clearance Order (ECO) Practices

5.2.1 ECO tags shall be conspicuously posted so that the component(s) can NOT be operated without the tag(s) being seen.

5.2.2 Controlled documents shall be consulted to determine ECO boundaries.

1. When controlled documents are NOT available, additional measures shall be taken to ensure an adequate ECO boundary is established and the clearance controller and holders shall be advised.

5.2.3 If an ECO tag is removed from a component for any reason, the tag will be accounted for and documented on the ECO.

1. At NO time shall an ECO tag be removed and subsequently re-hung, bypassed or ignored.

2. If the original ECO tag is removed, lost or destroyed, and the ECO boundary must be re-established, a new ECO tag shall be issued.

3. The Bus Outage Tag (which are placed over Danger Tags) may transfer jurisdiction of a danger tag to the isolation boundaries associated with a bus clearance in accordance with the provisions of ADM-212.1, Operations In-Plant Equipment Clearance Orders.

5.2.4 In cases where isolation boundaries can NOT be established for work affecting the pressure boundary, (e.g., work on the Reactor Vessel head, presurizer or steam generator primary or secondary sides), an ECO which is controlled by Operations, as well as other departments performing said work, shall be generated.

1. This ECO shall list all such work.

2. This ECO shall place ECO tags, with the ECO number, on in-service level, pressure, or temperature instruments which would be used to control fill and vent operations.

3. At least one vent and/or drain shall be tagged open as determined by Operations.

4. This ECO shall also include the following statement in the Instruction section of the ECO Cover Sheet (similar to Attachment 1):

   a. **This is an ECO for an unisolable system. Parameters are being maintained by the Operations shift for control of protective conditions.**

5.2.5 ECO tags shall be legible and understandable.

5.2.6 ECO tags should be securely attached to energy isolating devices when possible so that they can NOT be inadvertently or accidentally detached during use.

5.2.7 Where an ECO tag can NOT be affixed directly to the energy isolating device, the tag shall be located as close as safely possible to the device.

5.2.8 During a Bus Outage, the individual ECO tags on the breakers are superceded by the ECO Bus Outage Tags after the execution and acceptance of the Bus Outage ECO.

5.2.9 When repacking a valve on the backseat, the valve shall be tagged (DANGER or CAUTION) in the BACK–SEATED position and additional ECO boundaries shall be established (as necessary) to ensure the valve is subject only to pressure from a static elevation head of water or a system pressure less than 50 psig.

5.2.10 If no other means of isolation exists, check valves may be used as an isolation point of an ECO boundary, provided prior Nuclear Joint Safety Committee approval, FRG/PNSC review and Plant General Manager approval. The following additional measures shall be taken when a check valve is used as boundary isolation:

1. The check valve shall be verified to be holding pressure prior to commencement of work.

2. A drain, open flange or other means of draining shall be continuously monitored for the duration of work to ensure the check valve is not back leaking.

   a. If the job is NOT being actively worked, constant monitoring may be relaxed to a periodicity designated by Operations.

3. Place a note in the instruction block of the ECO Cover Sheet (similar to Attachment 1) explaining that a check valve is part of the ECO boundary.

4. ECO Controllers/Holders shall be notified that a check valve is part of the ECO boundary.

5. Nuclear Joint Safety Committee (NJSC) Review Form (similar to Attachment 9) shall be used.

6. During Outages, Risk Assessment Team review is required for issues that involve RCS inventory.

5.2.11 Operation of Components within an ECO

1. With the permission of the Shift Manager/SRO Designee, Maintenance personnel may manipulate the component that is under repair or test only to the extent necessary to facilitate repairs or job completion.

2. Components within an ECO boundary may be manipulated by maintenance with approval from the SRO provided a restoration step is included on the ECO.

3. All other component manipulations during the course of the repair shall be performed by qualified operators.

4. Immediately prior to energizing system (i.e., electrical, gas, air, water), request the permission of the on-shift US.

5. Instrument and Control personnel are allowed to manipulate valves downstream of the main instrument root valves (five-valve manifolds, internal isolations, etc.) for the performance of maintenance and calibrations. Instruments with single root isolations may be manipulated by I&C personnel provided IV/CDV provisions of the NPWO are followed.

NOTES

- *Only a manually operated switch, visible air break or a switch that can be locked or blocked in the open position will be regarded as clearing a circuit.*
- *In 4.16kv switchgear and 480 volt load centers, breakers shall be racked-out.*
- *4.16kv DC control power fuses are not tagged unless specifically required when maintenance is performed on control circuit.*
- *In 480 volt Motor Control Centers, molded case breakers shall be opened*
- *Following notification to all applicable controllers, a racked out and tagged 4.16kv switchgear, 480 volt load center breaker, or a reactor trip circuit breaker may be placed in the test position if required.*

5.2.12 Electrical Grounds

1. Electrical Grounds shall not be installed unless they are delineated as a Restoration step on the ECO. Electrical Department personnel are responsible for ensuring that all grounds are covered by the applicable ECO prior to installation.

   a. Electrical Maintenance shall notify operations of any electrical Grounds added or ground location changes.

   b. The Electrical Department General Maintenance Leader accepts the ECO and verifies that grounds to be installed are listed as a restoration step.

2. The Electrical Maintenance personnel shall install and remove the electrical grounds in accordance with Electrical Maintenance procedures.

5.2.12 (Cont'd)

3. Electrical Department personnel shall place magnetic signs indicating grounds are installed on the switchgear cubicles where grounds are present.

4. Removal of Electrical Grounds:

CAUTION

Electrical Department shall perform and sign both first and second verification that all grounds listed on an ECO are removed PRIOR to Operations restoring any related equipment controlled by the ECO.

a. The Electrical Department General Maintenance Leader/Supervisor shall authorize removal of the electrical grounds.

b. Electrical Department personnel shall sign the applicable step on the ECO form indicating grounds have been removed.

c. Electrical Department Supervision or GML shall independently verify that grounds have been removed and sign the applicable steps on the ECO.

5.2.13 Breaker Maintenance

1. During tasks where 4160V, 480V load center breakers or 480V Motor Control Center breakers are to be removed or swapped, an ECO is not required, as it provides no protection to the individuals performing the task. Operations may issue a clearance for configuration control if the breaker is to be removed from the cubicle for an extended time. If an ECO is issued for configuration control then the following will apply:

a. The ECO will be issued with an **Information** or **Caution** tag hanging on the door of the cubicle to be worked

b. A note will be included in the **hazards** section of the ECO identifying this ECO is for configuration control only and provides no personnel protection.

(1) During tasks that require the removal or replacement of molded case breakers on lighting panels and power panels when the entire panel will not or can not be de-energized, an ECO is required for configuration control and the following applies:

(a) An ECO may be issued with steps only to ensure the equipment is secured and the breaker is opened.

(b) No tag will be hung on the breaker to be removed or the panel face as the removal or replacement will require both the panel face and the breaker to be removed.

(c) A note will be included in the **hazards** section of the ECO identifying this ECO is for configuration control only and provides no personnel protection.

5.2.14 Control of Fuses

1. ECO tags associated with fuses shall be attached on or as close to the fuse holder as practical and in a location where they would be obvious to anyone intending to replace the fuses.

2. Non-tagged 4.16 KV breaker or other protective relaying fuses may be inserted under other approved plant procedures or by direction of relay work orders.

3. If the control power fuses on 4160V breakers are tagged, the tag should be placed on or near the fuse block and not on the inserts.

5.2.15 MOV Testing (MOVATS)

1. When a motor operated valve (MOV) is scheduled for MOV maintenance or testing, MOV Test Tags are to be issued by Operations.

2. MOV test tags shall be included as steps on the ECO.

3. For each MOV scheduled for maintenance or testing, a MOV test tag shall be issued:

   a. One tag will be placed on the MOV MCC breaker, mounted on the door lug or in the case of Power Panels on the breaker.

   b. If applicable, one tag will be placed on the Control Panel hand switch.

NOTES

- *Installation or removal of stem nuts may require a modification to the ECO boundary.*
- *The Nuclear Joint Safety Committee shall be contacted for activities not on the list.*
- *Installation/removal of 480VAC leads and installation/removal of stem nuts SHALL have an ECO.*

4. The following work activities may be performed on the MOV test tag:

   a. Installation and removal of test equipment.

   b. Limit switch and torque switch adjustments.

   c. Stem greasing.

   d. Installation, removal or lifting of 120VAC or 125VDC leads or jumpers.

   e. Installation or removal of kill switches.

5.2.15.4 (Cont'd)

f. Installation or removal of limit or torque switches.

g. Installation or removal of spring pack.

h. Determination or re-landing of 480V leads.

i. Installation or removal of stem nuts.

j. Install/remove stem block.

5. MOV Test Tag Usage

a. MOV test tags attached to the breaker under positive controls may be used in lieu of danger tags to provide personnel or equipment protection for MOV maintenance or testing as long as the pressure boundary of the system at the valve is not broken.

b. Danger Tags and MOV test tags shall not be used simultaneously on the same equipment.

c. Locks or ty-wraps may be used with the MOV Test tag to verify the breaker remains in OFF.

d. Breakers which have a MOV test tag may be operated by the test personnel as directed by the work Supervisor or General Maintenance Leader.

e. If the valve is to be operated, the Control Room shall be notified to operate the valve or obtain permission to locally stroke the valve.

5.2.16 Lifted Leads

NOTE

- *Lifted leads should not normally be used as an ECO boundary. There are times, however, when this is the most appropriate method for assuring personnel safety. Maintaining related equipment in a particular configuration may also be a consideration (e.g., multiple annunciator inputs or same power supply to different components).*
- *Maintenance personnel will be granted access as necessary to sign for verification as required by the SRO.*

1. If lifted leads are determined to be an ECO boundary, appropriate discipline (I&C or EM) shall provide input as to lead designations, location and potential related consequences.

2. If the qualified operator is not clear as to the exact lead on which to hang the ECO tag, the appropriate discipline (I&C or EM) personnel shall identify the lead for the operator to hang the tag AND perform Concurrent Dual Verification (CDV).

5.2.17 Should the unit needs dictate the release or boundary modification of an ECO, and the ECO Holder is verified NOT to be on site the following shall occur:

1. The Supervisor/General Maintenance Leader for that discipline shall attempt to contact the ECO Holder and obtain ECO release/boundary modification authorization.

   a. If unable to contact the ECO Holder, the ECO may be released or boundary modification authorized by the Supervisor/General Maintenance Leader of the same discipline available on site provided they:

      (1) Normally have jurisdiction over that circuit or piece of equipment.

      (2) Assume the responsibilities of the ECO Holder.

      (3) Verify the condition of the equipment is satisfactory to support the release or boundary modification of the ECO

      (4) The original holder shall be notified upon return to the site.

5.2.18 Should the unit needs dictate the release or boundary modification, of an ECO, and the ECO Controller is verified NOT to be on site the following shall be performed:

1. A Supervisor/General Maintenance Leader for that discipline that normally has jurisdiction over work on that circuit or piece of equipment shall assume the responsibilities of the ECO Controller and perform the following prior to authorizing the release/modification.

   a. Verify the condition of the equipment is satisfactory to support the release or boundary modification of the ECO.

   b. The original Controller shall be notified upon return to the site.

5.2.19 Installation and removal of vent rigs and blank flanges: An ECO is not required to remove or install vent rigs or blank flanges when the isolation valve is within sight of the flange and can be manually verified by the person performing the task to be closed and providing adequate isolation.

1. If problems are encountered during the installation or removal of vent rigs or flanges, notify operations to reestablish configuration control.

5.3 <u>ECO Request</u>

5.3.1 ECOs are normally requested by the Work Controls Group via Plan of the Day or during outages by the Outage Planning Group.

5.3.2 ECOs required for emergent/unscheduled activities should be requested from the Operations Department via the on-shift SM / US or WCCS.

5.4 ECO Acceptance

NOTES

- *ECO Forms are normally maintained electronically.*
- *Work is only to be performed by Maintenance personnel when the ECO is under the control of the Controller for that discipline.*
- *All ECOs should be reviewed by each responsible Maintenance discipline prior to the ECO being authorized for implementation. In case of emergent work the maintenance review may occur in parallel with or following ECO implementation in the field.*
- *During Outages an Outage Controller / ECO Coordinator shall be assigned to review work scopes to determine the safest and most efficient use of clearances. The Coordinator will act as a liaison between the individual department Controllers, Production Crews and Operations.*
- *Each Holder of an ECO shall ensure that a GML/Supervisor from his discipline is aware of the work to be performed and has accepted the responsibility of Controller for that work.*
- *Every work order assigned to an ECO shall have a Controller and Holder knowledgeable with the task to be performed. It may be necessary for more than one Controller for any given discipline to be on the ECO to cover all the work orders assigned. It is acceptable for the same person to act as both the Controller and Holder for an ECO provided the responsibilities for both are complied with.*

CAUTION

Prior to commencing work, verify that the equipment boundary is adequate using the latest copy of the Equipment Tag List in NOMS.

5.4.1 ECO Controller Sign On

The ECO Controller shall document their satisfaction with the ECO boundary by:

1. Signing the original ECO Form and recording the Date/Time.
2. Signing indicates concurrence that the ECO boundary is adequate for the work to be performed.
3. The Controller signs on to the clearance when all of the listed steps have been performed.
   a. Review the clearance special instructions and hazards
   b. Review the clearance boundaries against approved documents (P&IDs, CWDs, breaker lists) and ensure the boundaries are adequate to protect clearance holders under their responsibility for the scope of work to be performed.

5.4.1.3 (Cont'd)

c. Brief clearance holder(s) as to their responsibility on work scope and safe work boundary.

d. Ensure the clearance holder(s) are given the opportunity to walk the clearance down and verify that all energy sources have been isolated and the equipment is in a safe condition to allow work.

4. The ECO Controller takes control of the ECO Form.

   a. Maintain a copy of the ECO Form in the Maintenance or Projects area. This copy may be maintained electronically.

5.4.2 ECO Holder Sign on

Each ECO Holder assigned to work under an ECO shall verify the adequacy of that ECO by:

1. Reviewing the ECO and the Special Instructions.

2. Verifying an adequate tagged boundary exists for the planned work by utilizing available reference material.

3. The clearance holder shall ensure that he/she has been briefed on the work scope and safe work boundary of the clearance by the responsible controller signed on the clearance.

4. Verifying the work order number is listed on the ECO Form.

5. Holder shall perform a walk-down of the ECO boundary for those tags necessary to ensure safe isolation of the component being worked.

   1. Verifying that a nylon cable tie (ty-wrap) has been installed on the slide out locking device on each Motor Control Center (MCC) breaker or Load Center breaker locking tab for those clearance tags necessary to ensure safe isolation of the equipment being worked.

      a. This ty-wrap prevents accidental closure.

      b. The ty-wrap may be removed by qualified Electricians to open the breaker door.

      c. When the door is closed, a ty-wrap shall be installed.

6. The clearance holder shall sign on to the clearance prior to starting work. This action can be performed using the NOMS electronic database (preferred method), or by using the ECO Holder Form similar to Attachment 3. If The ECO Holder form is used, it shall be maintained by the Controller of that discipline.

CAUTION

Prior to commencing work, verify that the equipment boundary is adequate using the latest copy of the Equipment Tag List in NOMS.

5.4.3 Personnel assigned to work under an ECO shall verify the adequacy of the ECO prior to beginning work by:

1. Reviewing the ECO
2. Verifying an adequate tagged boundary exists for the planned work utilizing available reference materials.
3. Verifying the ECO Holder's signature is on the ECO Form.
4. Verifying the ECO by actual inspection of clearance tags necessary to ensure safe isolation of the component being worked.
5. Performing a test(s) to ensure the system or component is grounded, de–energized, de-pressurized, drained, purged of gases.
   a. Testing is normally considered within the skill of the craft; however, if uncertainty exists on how to perform these tests, consult the General Maintenance Leader, Supervisor, Safety Supervisor or Engineering.
   b. Examples of measures used to perform testing may include:
      (1) Use of volt meters
      (2) Loosening of bonnet bolts
      (3) Removal of instrument tubing
6. Verifying the necessary ECO Forms are in the applicable file or are posted in the maintenance area.
7. Verifying that a nylon cable tie (ty-wrap) has been installed on the slide out locking device on each Motor Control Center (MCC) breaker or Load Center breaker locking tab for those clearance tags necessary to ensure safe isolation of the equipment being worked.
   a. This ty-wrap prevents accidental closure.
   b. The ty-wrap may be removed by qualified Electricians to open the breaker door.
   c. When the door is closed, a ty-wrap shall be installed.

5.4.3 (Cont'd)

8. **IF** line starter contacts for all three phases of MCC breakers and power fuses (if applicable) are removed in lieu of breaker placed in OFF position, **THEN** ensure the following:

   a. Starter contacts (and fuses, if applicable) are in a transparent bag, affixed with the related ECO tag(s) to the attached lug.

   b. Completed form similar to Attachment 10 is affixed to breaker.

CAUTION

Prior to commencing work, verify that the equipment boundary is adequate using the latest copy of the Equipment Tag List in NOMS.

5.5 ECO Release

5.5.1 Clearance Holder Sign Off

1. The clearance holder should normally sign off of the clearance at the end of his/her shift or when the clearance is no longer required whichever is shorter. This action can be performed using the NOMS electronic database, or by using the ECO Holder Form similar to Attachment 3. When the clearance holder signs off of the clearance, perform the following:

   a. If all work is complete and you do not plan to sign back on the clearance, then select **yes** when asked if all work is complete in the signoff box.

   b. If work is not complete and there is a need to sign back on to the clearance at some future time, then select **no** when asked if all work is complete in the signoff box.

5.5.2 Controller Sign Off

1. The controller verifies all of his/her clearance holders (NOMS and/or paper form similar to Attachment 3) have signed off of the clearance and either of the following:

   - All work is complete and the equipment is ready for the restoration of energy.

   - The equipment will remain tagged out for another controller.

2. Upon completion of the work, the controller shall perform a walk-down to ensure that all work is completed and all personnel are clear of the job.

3. After signing off of the clearance when all work is complete, notify SM/US/ WCCS that all work is complete and the equipment is ready for restoration.

5.6 ECO Boundary Modification

5.6.1 An ECO Boundary Modification is a change that expands or reduces an existing clearance boundary to facilitate maintenance or testing.

NOTES

- *An ECO boundary modification is NOT required to move grounds from the front of a 4.16kv breaker to the rear. Positive identification shall be made of cubicle in the rear before moving grounds.*
- *If it is required to modify the ECO only to install grounds, a restoration step for ground removal will be added to the existing clearance via a revision.*

CAUTIONS

- ***A Work Stoppage Boundary Modification is required for any work order that would be unable to be performed in a safe manner while the changes to the boundary are being performed. This includes all work orders, even those NOT currently being worked, unless they are complete. These work orders shall be removed from the ECO.***
- ***Boundary Modification which energize busses or fill / pressurize a system, shall have all work stopped until an adequate clearance boundary has been re-verified. These work orders shall be signed off by the Holders prior to the Controller authorizing the Boundary Modification,***
- ***Work may continue on any work orders not affected by the Boundary Modification. These work orders and signatures will be carried forward on the ECO during the Boundary Modification process.***
- ***Work on a pump motor may continue if the motor is uncoupled from the pump and the Boundary Modification is to change the piping configuration.***

5.6.2 Once an ECO is determined to need a boundary modification, the ECO Controller/ECO Coordinator requesting the boundary modification shall consult with the Shift Manager/US/WCCS to determine if the boundary modification can be performed at this time. If the boundary modification can be performed, the ECO Controller/ECO Coordinator shall:

1. Identify all work tasks which are to be performed under this clearance. This includes any PWO/RWO/PCM currently attached to the clearance in the computer, whether it is in progress or NOT.
2. Consult with all ECO holders to determine the status of all work covered by the ECO. This includes on-going work and work which has NOT yet been started, but which is currently covered by this ECO boundary.
3. Determine the impact of the boundary modification upon each work order attached to the clearance regardless of the work status.

5.6.2 (Cont'd)

4. In consultation with the other Controllers/ECO Coordinators of this ECO determine the type of boundary modification required (work stoppage or non-work stoppage)

   a. Indicate the type of boundary modification by checking the appropriate block on the ECO Boundary Modification Form.

5. In all cases, ensure a tailboard is held with all holders, currently on site working under the ECO, detailing the changes to be made.

6. Include on the boundary modification form any work order numbers to be added or deleted due to the boundary modification.

5.7 ECO Boundary Modification (Non-Work Stoppage)

5.7.1 A non-work stoppage boundary modification is a change to the existing clearance where moving boundaries can be performed without jeopardizing the workers safety while the work can remain in progress.

NOTE

- *The ECO Boundary Mod preparer will electronically sign off clearance Controllers/ Holders from the original section only after their signatures have been transferred to the new revision. This process ensures that current signatures remain on the clearance.*
- *If the ECO Holder Form was used, all Controllers/Coordinator are responsible to update the form with current revision or Boundary Modification Number.*

5.7.2 Examples of when Non Work Stoppage Boundary Modifications may be used;

- If planned work that was originally requested on an ECO is cancelled, rescheduled, or completed, and other work under the ECO can still be performed safely with a reduced ECO boundary.
- To allow Plant Operations to control administrative requirements (for example: Containment Integrity ECOs) using other boundaries if plant conditions or administrative requirements change.
- To allow removal of tags that were incorrectly issued or issued on the wrong equipment during the ECO execution and after acceptance of the ECO.

5.7.3 For a non-work stoppage ECO boundary modification the following shall be performed:

1. The ECO Controller/Coordinator is responsible for preparing the ECO Boundary Modification Request Form and shall perform the following:

   a. List the reason for the modification.

   b. List all the proposed changes to the ECO, including any tags to be removed or added (additional pages may be added to the Boundary Modification request form as required).

   c. Obtain approval for the ECO boundary modification from all other controllers currently signed on to the ECO Form.

   d. All controller(s)/Coordinators **shall notify their ECO holders** of the Boundary Mod change prior to approving the boundary mod request.

   e. **Operations shall lock the ECO section** prior to performing **copy to active** to prevent controllers and holders from signing on during the boundary modification process.

   f. Once the boundary mod form is completed, the requester shall forward it to operations for final SM/US/WCSS/SRO approval and implementation.

   g. After the ECO boundary modification has been performed, Operations shall inform the ECO Controllers/Coordinators.

   h. The ECO Controller/Coordinator for each discipline shall obtain a copy of the modified ECO. If The ECO Holder form is used, it shall be updated by the Controller of that discipline.

5.7.4 ECO Boundary Modification (Work Stoppage) – A modification to an existing clearance boundary that, while in progress, could potentially jeopardize personnel safety.

NOTES

- *If the Work Stoppage boundary modification only applies to a specific discipline or activity, it should be specified by the controllers on the boundary modification form and work may continue on other work orders not affected by the boundary modification.*
- *Within 5 days of execution of a boundary modification for the purpose of testing, the ECO boundary should be restored, or the ECO should be released. [COMMITMENT STEPS 2.3.2 AND 2.3.3]*

1. Examples of when Work Stoppage Boundary Modifications shall be used:

   a. Energizing and/or running equipment controlled by a clearance for the purpose of testing.

5.7.4.1 (Cont'd)

b. Pressurizing and/or filling all or part of a system controlled by a clearance for the purpose of verifying integrity.

c. Whenever personnel safety could be compromised during the modification of a clearance boundary.

5.7.5 For a **Work Stoppage** ECO boundary modification, the following shall be performed:

1. The ECO Controller/Coordinator is responsible for preparing the ECO Boundary Modification request form and shall perform the following.

   a. List the reason for the modification.

   b. List all the proposed changes to the ECO, including any tags to be removed or added (additional pages may be added to the Boundary Modification request form as required).

   c. Obtain approval for the ECO boundary Modification from all other controllers currently signed on to the ECO Form.

   d. Controllers shall stay signed on to the clearance, but all holders shall sign off of the ECO prior to controllers submitting the boundary mod request.

   e. **Operations shall lock the ECO section** prior to performing **copy to active** to prevent controllers and holders from signing on during the Boundary Modification process.

   f. Once the boundary mod form is completed, the requester shall forward it to Operations for final SM/US/WCSS/SRO approval and implementation.

   g. After the ECO boundary modification has been performed, Operations shall inform the ECO controllers/Coordinators.

   h. The ECO controller for each discipline shall obtain a copy of the modified ECO. If The ECO Holder form is used, it shall be updated by the Controller of that discipline.

5.8 ECO Revision

5.8.1 ECO revision – is a modification to an existing ECO that does not alter the existing ECO ISOLATION boundary but could enhance the ECO boundary in the conservative direction to increase worker safety. The revision process shall require:

- SRO approval prior to implementation of the revision.
- The preparer shall verify the Original ECO section is locked to prevent controllers and holders from signing on during the revision process.
- The preparer of the ECO revision shall notify all Controller(s) and get their concurrence prior to implementation.
- The Controller(s) shall Notify all Holders of the Revision.
- The ECO Controller/Coordinator for each discipline shall obtain a copy of the revised ECO. If The ECO Holder form is used, it shall be updated by the Controller of that discipline.

1. Example where Revisions may be used:

   a. For the addition of restoration steps after execution of the ECO section.

   b. For the change of Tag types (i.e., Movats Tag to Danger) as long as the change is in the conservative direction (i.e. Danger tag has higher priority then a Movats Tag)

   c. For the addition or removal of tags that do not require work stoppage, do not affect the boundary or conflict with work orders assigned to the original ECO section.

   d. To remove tags that were incorrectly issued or issued on the wrong equipment during the ECO execution and before acceptance of the ECO.

   e. To add steps to include information tags or update annunciator panels.

   f. To correct errors of a clerical nature such as typographical errors in valve nomenclature or component location.

5.9 ECO Computer Failure

NOTE

This section to be used as guidance when the NOMS System is not available or not functioning correctly.

5.9.1 Contact the Operations WCCS.

5.9.2 Provide filled out hard copies of the Controller and Holder Forms, similar to Attachments 2 and 3, when requested by the WCCS.

5.9.3 Follow instruction from the WCCS to release or accept an ECO. The WCCS will follow the guidance in accordance with 0-ADM-212.1, Operations In-Plant Equipment Clearance Orders, Subsection 5.15.

5.9.4 For Boundary Modifications follow instructions from the WCCS.

END OF TEXT

ATTACHMENT 1
(Page 1 of 2)
ECO COVER SHEET

1	Unit Number:	2	Equipment Clearance Order Number:
4	Equipment/System to be Tagged:		
5	Reason for Equipment Clearance:		
6	Opened By:		
10	Closed By:		
3	System Number		

DATE _____
DOCT _____
SYS _____
ITM _____

12	Equipment Clearance Order Verified Correctly Hung							
	Conducted By	Date	Conducted By	Date	Conducted By	Date	Conducted By	Date

EOOS Log Update (Upon Releasing) YES NO N/A (Circle One)

Release Review: _____ Date: Time:

ATTACHMENT 1
(Page 2 of 2)

ECO COVER SHEET

1	Unit Number:	2	Equipment Clearance Order Number: Equipment Clearance Order Section:
3	System Number		
4	Equipment/System to be Tagged:		
5	Reason for Equipment Clearance:		

DATE _____
DOCT _____
SYS _____
ITM _____

6 and 8

Prepared By:		
Unit Supervisor Reviewed By		
Shift Manager Reviewed By		
Verified Executed		
Work Complete		
Equip I/S Boundary Ck'd		
Grounds Removed Verif		
Release Review By		
Release Authorized By		
Tags Verif Removed By		

7

Dept	Controller Accepted	Date/Time	Controller Release	Date/Time
OPS				
MECH				
ELECT				
PROJ				
ENG				
RELAY				
I/C				
HP				
OTHER				
OTHER				
OTHER				

9 Safety Review:

Tagout Type	N – None
Safety Related	No
Risk Significant	No
Tech Spec Related	No
Load Threatening	No
Load Limiting	No

10 Hazards:
11 Special Instructions:

ATTACHMENT 2
(Page 1 of 1)

ECO CONTROLLER FORM (WORK ORDERS)

Equipment Clearance Order Number: LMD:

Equipment Clearance Order Section:

Controller: _____ Department: _____ Controller Acceptance: _____ Date: _____ Time: _____

Unit: _____ System # _____ Controller Release: _____ Date: _____ Time: _____

Work Order	LMD	Component	Work to be Performed	Initial Complete

SAMPLE

F391 – Rev. 0 (4/29/03 – 0-ADM-212)

W97:JM/ms/dw/ab

ATTACHMENT 3
(Page 1 of 1)

ECO HOLDER FORM

CLEARANCE SECTION NUMBER: _____ WORK ORDER(TASK) NUMBER _____

If This ECO Holder form is used, it shall be maintained by the Controller of that discipline.
Each form is good for only one Work Order(Task).

ECO Controller Print Name	Sign Authorizing using the paper form	Department	Date

Accepted By ECO Holders Print Name	Accepted By Sign	Accepted Date/Time	Ext.	Badge Number	Released By Sign	Released Date/Time	Is Work Completed Yes/No

SAMPLE

F-533 – Rev. 0 (8/31/04 - 0-ADM-212)

W97:JM/ms/dw/ab

SAMPLE

ATTACHMENT 4
(Page 1 of 1)

ECO BOUNDARY MODIFICATION FORM

BM Number: _____

Originator: _____ ECO No.: _____ Date: _____

Reason/NOTES: _____

TAGS ADDED

COMPONENT ID	DESCRIPTION	ACTION REQUIRED

TAGS REMOVED

COMPONENT ID	DESCRIPTION	ACTION REQUIRED

☐ Work Stoppage ☐ Non-Work Stoppage ☐ Boundary Mod for Test

Shift Manager Signature _____ Date/Time _____ / _____

ECO Controller Signature _____ Date/Time _____ / _____

ECO CLEARANCE HOLDER APPROVAL

SIGNATURE	DATE/TIME	SIGNATURE	DATE/TIME

Affected work orders _____ _____

_____ _____

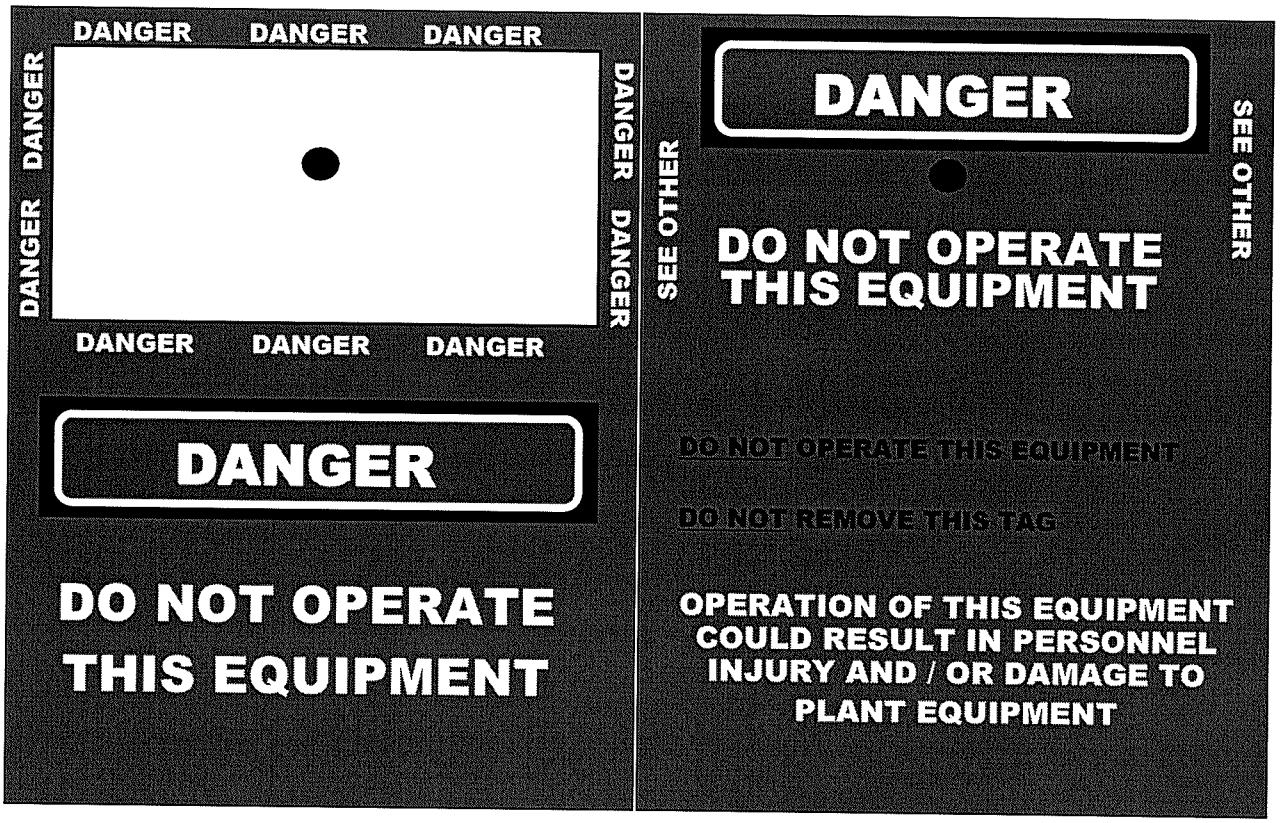
F-483 – Rev. 1 (8/31/05 – 0-ADM-212)

ATTACHMENT 5
(Page 1 of 1)

MOV TEST TAG

Operating Permit Tag - This tag gives the personnel holding the clearance authority to manipulate the component being worked provided permission has been approved by an SRO. They provide a visual warning marking the isolation boundary for equipment or systems to prevent personnel injury or equipment damage. They are under the Direct Control of A Single Work Holder.

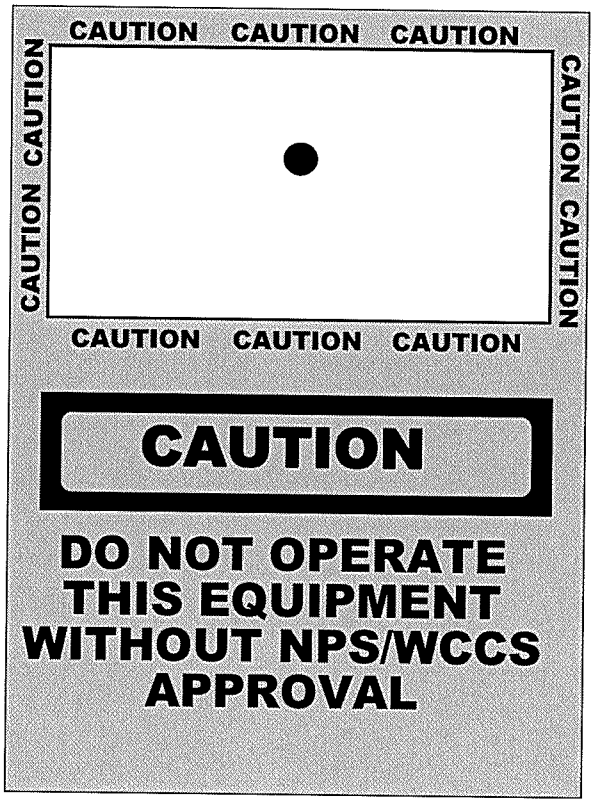
ATTACHMENT 6
(Page 1 of 1)
ECO TAG

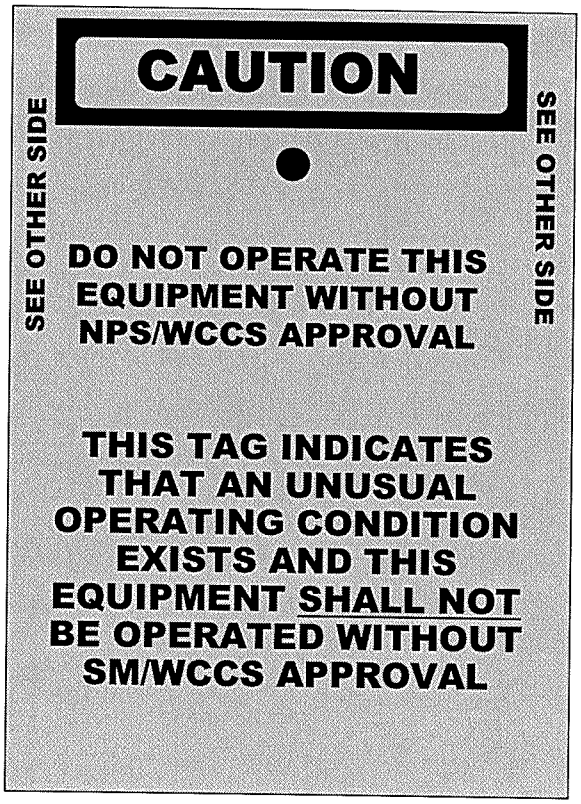


ECO Danger Tag - A tag hung on all boundary points, which isolate equipment from sources of energy to permit work to be performed safely. No manipulation is allowed.

ATTACHMENT 7
(Page 1 of 1)

CAUTION TAG





Caution Tag - A Caution Tag is used to identify conditions that are unusual or potentially hazardous or to provide precautionary information for operating equipment under conditions that do not require a Danger Tag. Caution tags can be manipulated with Shift Manager/WCCS (Work Control center Supervisor) approval. Caution tags printed utilizing the NOMS printers are similar in appearance to the Danger clearance tags, but have the word CAUTION on them instead of DANGER. All other procedures using Caution tags will utilize the standard FPL Form 102 Tag.

ATTACHMENT 8
(Page 1 of 1)

BUS CLEARANCE TAG

Electrical isolation for this breaker is provided by the Bus Clearance in accordance with 0–ADM-212, Operations In-Plant Equipment Clearance Orders

ECO #

Component_____

This breaker is under Electrical Dept. Control.

FRONT

Electrical isolation for this breaker is provided by the Bus Clearance in accordance with 0–ADM-212, Operations In-Plant Equipment Clearance Orders

BACK

ATTACHMENT 9
(Page 1 of 1)

JOINT SAFETY COMMITTEE (JSC) REVIEW FORM

Date: _____

Description of Un-isolable Condition *

_____
_____
_____
_____
_____
_____

* **Provide drawing details and other supporting documents.**

Proposed Mitigating/Contingency Measures (Be Specific)

_____
_____
_____
_____
_____
_____

Additional JSC proposed contingency measures

_____
_____
_____
_____
_____
_____

JSC APPROVAL ☐

JSC REJECTED ☐

Local Joint Advisory Safety Committee (LJASC) _____ / _____
Signature *Print*
Union Committeeman

_____ / _____
Signature *Print*
Company Committeeman

ATTACHMENT 10
(Page 1 of 1)

STARTER MAIN CONTACTS AND FUSE REMOVAL FORM

ECO #:_____ **BREAKER #:**_____

STARTER MAIN CONTACTS ON ALL 3 PHASES HAVE BEEN REMOVED

FUSES HAVE BEEN REMOVED: _____ **YES** _____ **N/A**

OPERATIONS:_____ _____ _____
Signature *Print* *Date*

EM JOURNEYMAN:_____ _____ _____
Signature *Print* *Date*

EM GML:_____ _____ _____
Signature *Print* *Date*

AFFIX THIS SHEET TO BREAKER PANEL REMOVE AFTER RESTORATION

FINAL PAGE

Florida Power & Light Company

Turkey Point Nuclear Plant

This procedure may be affected by an O.T.S.C. (On The Spot Change) verify information prior to use
Date verified_____ Initials_____

0-ADM-212.1

Title:

Operations In-Plant Equipment Clearance Orders

Responsible Department:	Operations/Safety
Revision Approval Date:	11/2/06
Periodic Review Due:	3/13/11

RTSs *99-0532P, 99-1024, 00-0546P, 01-0100P, 01-0426P, 01-0431, 02-0070P, 03-0006P, 03-0111P, 03-0380P, 03-0801, 04-0104P, 04-0761P, 06-0894P*

W97:JE/mrg/slb/mrg

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1.0 PURPOSE

1.1 This procedure provides guidance in the use of Equipment Clearance Orders (ECO) for the isolation of equipment to protect personnel from energy sources, for the use of other controls when isolation is NOT possible and for administrative control of equipment.

1.1.1 Compliance with this procedure provides a safe working environment for personnel and equipment. Changes to this procedure shall be reviewed by Nuclear Joint Safety Committee (NJSC).

2.0 REFERENCES/RECORDS REQUIRED/COMMITMENT DOCUMENTS

2.1 References

2.1.1 Quality Instructions/Plant Procedures

1. QI 3-PTN-1, Design Control
2. QI 14-PTN-1, Inspection, Test and Operating Status
3. 0-ADM-016.3, Fire Protection Impairments
4. 0-ADM-031, Independent Verification
5. 0-ADM-033, PTN Industrial Safety Program
6. 0-ADM-200, Conduct of Operations
7. 0-ADM-205, Administrative Control of Valves, Locks and Switches
8. 0-ADM-212, In-Plant Equipment Clearance Orders
9. 0-ADM-213, Tech Spec Related Equipment Out-of-Service Logbook
10. 0-ADM-217, Conduct of Infrequently Performed Tests and Evolutions
11. 0-ADM-701, Control of Plant Work Activities
12. 0-GME-005.1, 4.16KV Equipment Grounding and Testing
13. 0-OSP-200.1, Schedule of Plant Checks and Surveillances
14. 0-PME-005.6, 4160V A and B Bus Inspection and Cleaning
15. 0-PME-090.1, Power Generator Grounding

2.1.2 Regulatory Guidelines

1. INPO Good Practice 87-002, Tagging Procedures for the Protection of Personnel, Components, and Systems
2. NUREG 0737
3. 10 CFR 50 Appendix B, Criterion XIV, Inspection, Test, and Operating Status
4. OSHA Standard 29 CFR 1910.269, Electrical Power Generation

2.1.3 Miscellaneous Documents (i.e., PC/M, Correspondence)

1. FPL Safe Work Practices Book
2. CR-96-1106, Control of Excess Material Inside Containment (PTN-ENG-SENS-96-077)
3. PNSC 96-217, 10 CFR 50.59, Safety Screening Format
4. CR-00-0910, Human Error Related Events

2.2 Records Required

2.2.1 Completed copies of the below listed item(s) constitute Quality Assurance records and shall be transmitted to QA Records for retention in accordance with Quality Assurance Record Program requirements:

1. None

2.2.2 Completed copies of the Nuclear Joint Safety Committee (NJSC) Review Form should be routed to Safety Department for record keeping.

2.3 Commitment Documents

2.3.1 NIR 88-07, Failure to Maintain Clearance on Non- Seismic Gauges

2.3.2 PTN-PMN-88-313, CAR 88-016 dated June 21, 1988, Temporary Lifts Being Abused

2.3.3 PTN-PMN-88-361, CAR 88-025 dated July 21, 1988

2.3.4 FOP 92-039, Both Shutdown Cooling Relief Valves Found Disabled, PSL Problem Report (PR/IHE-92-010)

2.3.5 NIR 89-45 C/A 4, C: Administrative Controls for Hose Connections Upon Closure of Associated Clearance, CTRAC 89-1552-34

2.3.6 NIR 94-01, USNRC Resident Inspector's Monthly Report

2.3.7 QAO-PTN-94-008, Inadequate Equipment Administrative Control for Work on Flux Mapper Guide Tube - RCS Non-Isolable Integrity Breach

2.3.8 OSHA STANDARD 29 CFR 1910.269, Electric Power Generation, Transmission and Distribution; Electrical Protective Equipment; Final Rule

2.3.9 PTN-ENG-SEMS-96-070, Biocide Treatment of Closed Cooling Water Systems

2.3.10 LER 2003-005-00, Disabling Both Auxiliary Feedwater Trains Inadvertently During Mode 3

3.0 RESPONSIBILITIES

3.1 Operations Manager

3.1.1 Approves the hanging of ECO tags in the containment during Modes 1 and 2. [Commitment - Step 2.3.3]

3.2 Assistant Operations Manager

3.2.1 Acts on the results of the periodic ECO review.

3.3 Senior Reactor Operator (SRO)

3.3.1 Verifies the adequacy of ECO boundaries.

3.3.2 Approves review of all ECOs.

3.3.3 Authorizes all ECOs.

3.3.4 Approves ECO boundary modifications.

3.3.5 Ensures adherence to Technical Specification requirements for equipment operability, limiting conditions for operation, equipment redundancy, surveillance testing and containment integrity.

3.3.6 Approves ECO Revisions and verifies boundary modification is not required.

NOTE

The Shift Engineer or System Engineer may be consulted to determine if execution of an ECO will result in the plant being operated in a condition other than described in the UFSAR.

3.3.7 Determines if a 10 CFR 50.59 evaluation is needed in accordance with Safety Related ECO Evaluation Sheet (similar to Attachment 3).

3.3.8 When issuing or releasing an ECO, ensures applicable valves, locks and switches under administrative control are properly denoted on the order (i.e., designated LOCKED OPEN or LOCKED CLOSED) in accordance with 0-ADM-205, Administrative Control of Valves, Locks and Switches.

3.3.9 Directs Reactor Operator or qualified operator to prepare and execute ECOs.

3.3.10 Resolves ECO discrepancies in the field.

3.3.11 Ensures the person issued an ECO is on the authorized list.

3.3.12 Directs operators to execute ECOs.

3.3.13 Verifies ECO Boundary is adequate for attached work orders and prior to attaching new work orders or executing boundary mods / revisions.

3.3.14 Directs the writing of ECOs.

3.3.15 Supports the Plan of the Day (POD) ECO List.

3.3.16 Authorizes and reviews the realignment of ECOs that have been released.

3.3.17 Ensures that operators are briefed on the purpose of the ECO and conditions that should be established inside the boundary for safe performance of work.

3.4 Shift Manager (SM)

3.4.1 Performs all duties under Senior Reactor Operators (SRO).

3.4.2 Notifies the Unit Supervisor and Reactor Operator of ECOs affecting Technical Specification, safety related, risk significant or in-service systems during an outage.

3.4.3 Reviews all ECOs active for greater than 30 days.

3.5 Unit Supervisor (US)

3.5.1 Performs all duties under Senior Reactor Operator (SRO).

3.5.2 Reviews Temporary System Alterations (TSA) for affect on ECO boundaries.

3.5.3 When an ECO is executed or released, updates the Equipment Out-of-Service Log (EOOS).

3.5.4 If a conflict is identified between computerized clearance system and the hard copy of the ECO, directs an investigation.

CAUTION

The TPCW System, CCW System, EDG Cooling Water Systems and the Chilled Water Systems for the 4160/480 Switchgear Rooms, Vital Electrical Equipment Room, Computer Room, and Cable Spreading Room may contain biocides that present a personnel safety or chemical release hazard.
[Commitment - Step 2.3.9]

3.5.5 Obtains verification from Chemistry that NO biocide hazard exists prior to issuing an ECO on the TPCW System, CCW System, EDG Cooling Water Systems, or one of the Chilled Water Systems for the 4160/480 Switchgear Rooms, Vital Electrical Equipment Room, Computer Room, or Cable Spreading Room that require the draining of liquid from the system.
[Commitment – Step 2.3.9]

3.6 Work Control Center Supervisor (WCCS)

3.6.1 Performs all duties under Senior Reactor Operators (SRO).

3.6.2 Performs all duties under Unit Supervisor.

3.6.3 Reviews ECOs.

3.7 Nuclear Watch Engineer/Field Supervisor

3.7.1 Performs all duties under Senior Reactor Operator (SRO).

3.7.2 Coordinates ECO activities outside the Control Room.

3.7.3 Performs ECO activities delegated by the SM/US.

3.8 Reactor Operator (RO) or Authorized Operator

3.8.1 Ensures the person issued an ECO is on the authorized list.

3.8.2 Researches ECO boundaries.

3.8.3 Writes Master ECOs.

3.8.4 Writes ECOs, also includes the restoration position of the components using documents such as prints, procedures and attachments.

3.8.5 Directs operators to execute ECOs.

3.8.6 Executes ECOs for equipment they are qualified to operate.

3.8.7 Briefs operators on the following:

1. The purpose of an ECO to be executed
2. The conditions that should be established within the ECO boundary for safe performance of work (non-outage)

3.8.8 Reviews the ECO to verify proper alignment of all components within the ECO boundary upon release.

3.8.9 Ensures computerized database is updated for all ECO status changes and step manipulations via boundary modifications.

3.8.10 When issuing or releasing an ECO, ensures applicable valves, locks and switches under administrative control are properly denoted on the order (i.e., designated LOCKED OPEN or LOCKED CLOSED) in accordance with 0-ADM-205, Administrative Control of Valves, Locks and Switches.

3.9 Qualified Operator

3.9.1 Executes ECOs as written and in the sequence detailed.

3.9.2 Performs ECO activities delegated by the SM/US/WCCS/NWE/FS/SRO.

3.10 Shift Engineer

3.10.1 Assists SM/US/WCCS in determining if a 10 CFR 50.59 Applicability Determination/Screening/Evaluation is needed prior to authorizing an ECO.

3.10.2 If an ECO has been in effect for more than 60 days AND a 10 CFR 50.59 Applicability Determination/Screening has NOT been previously performed, performs a 10 CFR 50.59 Applicability Determination/Screening review of the ECOs in accordance with 0-ADM-104, 10 CFR 50.59 Applicability/Screening Reviews.

3.10.3 If the Applicability Determination/Screening review identifies a 10 CFR 50.59 evaluation is required, a Condition Report should be generated to address the condition.

3.11 Safety Supervisor

3.11.1 Ensure that an annual evaluation is conducted and documented to verify plant personnel that use this procedure are trained in the purpose and use of this procedure.

3.11.2 Results of the annual evaluations shall be provided to the Training Manager for incorporation into the annual training of the ECO process.

3.12 Training Manager

3.12.1 Provides initial training on this procedure for all employees who write, execute, or release ECOs.

3.12.2 Provides pre-implementation training on this procedure whenever there is a change in the procedure which affects safety.

3.12.3 Provides annual training on this procedure.

3.13 Chemistry Department Supervisor

NOTE

The determination that biocides are NOT present in the system may be determined by the system history (no biocides have been added), previously obtained acceptable sample results (no biocides have been added since last acceptable sample), or by determining current samples do NOT contain biocides above acceptable levels (biocides have been added to the system and a previous sample has shown acceptable concentrations of biocides needed for personnel safety or liquid releases). [Commitment - Step 2.3.9]

3.13.1 Upon request from the US or WCCS, determines if a biocide personnel safety or release hazard exists prior to the authorization of an ECO.

3.13.2 Notifies the US or WCCS of the results of the biocide determination and whether or not the system is safe for draining.
[Commitment - Step 2.3.9]

3.14 Operations Outage Shift Director

3.14.1 Approves the attachment of Outage work to existing ECOs and the hanging of outage ECOs after the start of the outage. The Controller of the Work Order shall be notified of the addition.

3.14.2 Directs outage ECOs under the direction of the SM.

3.14.3 Notifies the SM of all ECOs affecting Tech Spec, Safety Related, Risk Significant, or in-service system.
[Commitment - Step 2.3.9]

4.0 DEFINITIONS

4.1 Authorized Operator - An operator authorized to perform tasks associated with ECOs. This person shall be authorized by the Assistant Operations Manager or Designee and shall have completed required ECO training.

4.2 Bus Outage Tag – A device or method that allows the Bus Outage Clearance ECO jurisdiction over the individual ECO isolation tags at breakers. Information is provided at the individual breakers to inform holders that the electrical isolation for individual clearances is provided by the Bus Clearance.

4.3 Caution Tag - A tag used to identify conditions that are unusual or potentially hazardous to provide precautionary information for operating equipment under conditions that do not require a danger tag. Equipment governed by a caution tag can be manipulated with SRO approval.

4.4 Concurrent Dual Verification (CDV) – Concurrent Dual Verification is the verification of operations, testing, and maintenance activities that is performed concurrent with the activity by a second individual. CDV is a preferred alternative to an Independent Verification where an IV is impractical or where immediate potential adverse affects to the plant would occur if the component were incorrectly positioned. CDV incorporates and depends upon good three-part communication and peer checking. Instances where CDV would be preferred to an IV include but are not limited to, throttling a valve and testing, calibrations, or lineups that are done utilizing the procedure in the **reader/doer** mode.

4.5 ECO Boundary Modification - a change that expands or reduces an existing clearance boundary to facilitate maintenance or testing.

4.6 ECO Boundary Modification Form - A form used to list the proposed boundary changes and to document the approval to perform these changes.

4.7 ECO Control Form - A form signed (electronically) by the ECO Controller and holders to document verification of the adequacy of the ECO boundary.

4.8 ECO Information Tag - A tag hung on or near component switches or display gauges to indicate its associated equipment is located within or affected by an ECO boundary.

4.9 ECO Preparer - The Reactor Operator or authorized operator who writes an ECO or ECO Boundary modification.

4.10 ECO Release - Occurs when all ECO holders/ controller release their right to work and their right to protection within the ECO boundary by signing in the ECO Release section of all applicable ECO Controller/ holder Forms.

4.11 ECO Revision – a modification to an existing ECO that does not alter the existing ECO ISOLATION boundary but could enhance the ECO boundary in the conservative direction to increase worker safety.

4.12 ECO Tag - A tag hung on all boundary points that isolate equipment from sources of energy to permit work to be performed safely. Tagout devices, including their means of attachment, shall be substantial enough to prevent inadvertent or accidental removal. Tagout device attachment means shall be of a non-reusable type, attachable by hand, self-locking and non-releasable, with a minimum unlocking strength of no less than 50 pounds and shall have the general design and basic characteristics of being equivalent to a 1 piece, all environment tolerant nylon cable tie.

4.13 Equipment Clearance Order (ECO) - A formal order for administrative control on plant components and/or systems, delineating the method for configuring plant equipment where isolation is possible, or for control of system parameters (i.e., level, pressure) where isolation is not possible, which permits safe entry for construction, testing, maintenance, or inspection.

Each ECO must be comprehensive in nature to establish an adequate boundary. The ECO cannot rely on plant conditions that are not identified and controlled on the equipment clearance order, boundaries established by other ECOs, or system configurations outside an ECO boundary to provide personnel and equipment protection.

4.14 Letter Designation - In some instances there will be a letter designation at the end of an ECO number. This designation is optional and will indicate the general type or purpose of the ECO. The letter options used will be as follows:

4.14.1 A - Administrative

4.14.2 C - Caution Tag

4.14.3 H - Hydro

4.14.4 I - Integrity

4.14.5 L - LLRT

4.14.6 R - Outage Related

4.14.7 T - Test

4.14.8 M - Management

4.14.9 S - Short Notice Outage (SNO)

4.15 Master ECO - A previously researched ECO boundary stored in computer database.

4.16 MOV Test Tag – A tag issued for motor operated valves to give Maintenance control for scheduled MOV maintenance or testing.

4.17 Outage Controller/ECO Coordinator – An individual may be appointed when the number of personnel and/or clearances are above normal. This Coordinator shall be qualified in In-Plant Clearances Requirements. The Coordinator will assume the responsibilities of a Controller for all work assigned to an outage zone clearance and act as a liaison between Operations and the individual department Controllers and Holders. Licensed operators meet this qualification criteria.

4.18 Qualified 10 CFR 50.59 Reviewer – Any person that meets the 10 CFR 50.59 Screening training requirements, possesses the requisite experience to competently analyze the proposed change/activity and is on the qualified reviewers list.

4.19 Qualified Operator - Operators who have successfully completed all requirements necessary to operate the equipment on which the ECO is to be executed.

4.20 10 CFR 50.59 Applicability Determination/Screening Review - Performed to determine if an ECO on any safety related system or component requires an evaluation under 10 CFR 50.59(c)(2) criteria.

4.21 Safety Related – Any system, subsystem, display, or instrumentation that is required for the safe shutdown of the plant, or is used to minimize the release of radiation to the public.

4.22 Tech Spec Related – Components, equipment, or systems whose operability is addressed by Technical Specifications.

5.0 PROCEDURE

NOTES

- *ECO tags are warning devices affixed to energy isolating equipment and do NOT, in themselves, provide a physical restraint.*
- *Personnel NOT trained on this procedure, shall NOT perform ECOs.*
- *When tagged components are shared with multiple ECOs, caution should be used when restoring systems to ensure configuration control. Tag sharing warnings should be addressed and the proper releasing order of sections that shared tags should be verified by the SRO.*

5.1 Standard ECO Practices

5.1.1 Equipment, on which an ECO has been granted, shall NOT be considered safe until tests have been made using approved methods to verify that the equipment is de-energized, grounded, drained and/or depressurized as required.

5.1.2 ECO tags shall be conspicuously posted so that the component can NOT be operated without the tag being seen.

5.1.3 An ECO shall NOT be utilized as a means of bypassing procedural requirements.

5.1.4 When any special instruction can be verified with an action, it should be written as a step in the ECO; otherwise, it should be included as a note in the Instruction block.

5.1.5 When hanging ECO tags, electrical switching should be performed first.

5.1.6 When removing ECO tags, electrical switching should be performed last.

5.1.7 ECO tags hung on control panels shall be secured in a manner that allows accessibility to controls without obscuring plant status indicators, controls, switches, and labels.

5.1.8 Controlled documents, such as prints, procedures and attachments, shall be consulted to determine ECO boundaries.

1. When controlled documents are NOT available, additional measures shall be taken to ensure an adequate boundary is established and the ECO holders shall be advised.

5.1.9 Prior to approving an ECO, it shall be DETERMINED the impact on equipment availability as required to meet Technical Specification.

5.1.10 The ECO Tag Hang List shall be IN HAND <u>and</u> USED as a guide during execution.

5.1.11 When ECOs are executed in contaminated areas, outdoors during inclement weather or for large ECOs:

1. An exact copy of the ECO may be used.
2. Information recorded on the exact copy shall be transferred to the original as soon as possible upon completion.

5.1.12 An ECO information tag should be placed on or near component switches or display gauges to indicate the associated equipment is within or affected by an ECO boundary.

1. Independent verification of ECO information tags is not required.
2. ECO information tags shall not be used on ECO boundary components in lieu of an ECO tag.
3. An ECO Order step shall be written to control each ECO information tag.
4. Manipulation of a component or switch with an Information Only Tag is permitted.

5.1.13 If an ECO tag is removed from a component for any reason, the tag will be ACCOUNTED for <u>and</u> DOCUMENTED on the ECO.

1. At NO time shall an ECO tag be REMOVED and subsequently RE-HUNG, bypassed or ignored.
2. The Bus Outage Tag (which are placed over Danger Tags) may transfer jurisdiction of a danger tag to the isolation boundaries associated with a bus clearance in accordance with provisions of this procedure.
3. <u>If</u> the original ECO tag is removed, lost or destroyed, <u>and</u> the ECO boundary must be re-established, <u>Then</u> a new ECO tag shall be issued.

5.1.14 During the Independent Verification/Concurrent Dual Verification of the ECO, the ECO Form shall be initialed after the IV/CDV for that step has been completed.

5.1.15 Tag placement shall only be DONE after the component is manipulated to its required position per the ECO.

5.1.16 In cases where isolation boundaries can NOT be established for work affecting the pressure boundary (e.g., work on the Reactor Vessel head, pressurizer or steam generator primary or secondary sides), an ECO which is controlled by Operations, as well as other departments performing said work, shall be generated.

1. This ECO shall list all such work.
2. This ECO shall place ECO Tags, with the ECO number, on inservice level, temperature or pressure instruments which would be used to control fill and vent operations.

5.1.16 (Cont'd)

3. A vent path shall be established as determined by Operations.

4. Caution tags should be placed on control room valve/component switches that if manipulated could affect the clearance boundary and/or plant parameters that are being controlled during an un-isolable configuration . These Caution tags shall warn that manipulation of these components could jeopardize the safety of personnel working under this ECO.

5 This ECO shall also include the following statement in the Instruction section of the ECO Form:

This is an ECO for an un-isolable system. Parameters are being maintained by the Operations shift for control of protective conditions.

5.1.17 Tags shall be legible, understandable and capable of withstanding environmental conditions.

5.1.18 Tags should be securely attached to energy isolating devices so that they can not be inadvertently or accidentally detached during use.

5.1.19 Where a tag can NOT be affixed directly to the energy isolating device, the tag shall be located as close as safely possible to the device, in a position that will be immediately obvious to anyone attempting to operate the device.

5.1.20 For configuration control, the Operations Department may use the Breaker/Valve Alignment Sheet, a form similar to Attachment 4 of this procedure. This sheet **SHALL NOT** be used in place of an ECO or in place of a Caution Tag ECO.

1. The SM or SRO Designee shall approve the Breaker/Valve Alignment Sheet after performing the following:

   a. Verify that the specified steps satisfy the requirements of the activity being performed.

   b. Verify that plant conditions (TSAs, current alignment, active ECOs, testing, etc.) will support the manipulation of the component(s) listed.

   c. Verify that Containment Integrity is maintained, as required.

   d. Verify compliance with Technical Specifications.

   e. Determine which steps require use of CDV, and anotate those steps on the Sheet.

   f. Verify that the sequence of steps is correct.

2. If doubt exists as to whether the execution of the Breaker/Valve Alignment Sheet will result in the plant being operated in a condition that adversely affects an UFSAR described design function, the SM/SRO shall refer to the questions listed on the 10 CFR 50.59 Applicability Determination/Screening to determine if a 10 CFR 50.59 Evaluation is needed.

5.1.21 If an ECO will require a 120V Vital AC or 125V Vital DC Breaker to be opened that has not been authorized in accordance with an approved plant procedure, the Engineering Department SHALL sign the Engineering Review block to indicate that an independent review has been completed. (Reference CR 03-0406)

5.1.22 For clearance tags issued on a bistable located in the Control Room the tags should be secured to the rack door in clear view of anyone entering the protection or control rack.

5.2 Valve Practices

5.2.1 Establishing an ECO Boundary around a Motor Operated Valve (MOV)

1. To perform maintenance on the valve portion of the MOV, the breaker shall be Danger tagged open and the isolation valves shall be Danger tagged closed, including inner disc relief isolation valves if the MOV is a double disc valve.

2. To perform maintenance on the motor actuator or gear box portion of the MOV, the breaker shall be tagged with a MOV Test Tag attached to the breaker, and NO tag on handwheel.

3. If the stem nut locknut or the upper bearing housing is to be removed:

   a. The isolation valve(s) shall be tagged closed, and a means to vent and drain the piping is provided,

   OR

   b. A stem locking device shall be provided and tagged **DO NOT REMOVE.**

   OR

   c. Static conditions limited to a maximum of 50lbs will be provided by the ECO boundary . Components or valves will be tagged to ensure the static conditions are maintained for the duration of the Movats testing or actuator overhaul. Pressure at the valve will be verifiable by observation of system pressure or system vented to atmospheric pressure (ie., Vent valve tagged open, head removed or safety removed and tagged). The MOV under MOVATs will be initially in the open position on the hang of the ECO.

4. When MOVATS is to be performed:

   a. Ensure the system/component is isolated prior to stroking the valve

   OR

   b. Ensure that any stroke will NOT affect/cause system flow.

CAUTION

MOV declutching may result in the shearing of the torque switch roll pin, and further torquing of the valve after it is declutched could result in serious valve damage.

5.2.2 MOVs may be used as isolation points of an ECO boundary provided the breaker is tagged open and the handwheel is tagged **DO NOT OPERATE**, or the MOV is blocked with a mechanical blocking device which is tagged **DO NOT REMOVE**.

5.2.3 A pneumatically operated valve may be used as an isolation point of an ECO boundary provided:

1. A fail closed valve shall:

   a. Be visually verified to be closed locally or by the use of light indications remotely, and

   b. Have its gas supply isolated and tagged, or

   c. Have its control power fuses removed and tagged, and

   d. For valves which have handwheels, the handwheel is tagged appropriately, (i.e., locked in up position, neutral, etc.), depending on the type of valve.

   e. Valves without handwheels shall be tagged on the valve body **Valve Must Remain Closed**.

2. A fail open valve shall be closed with jacking or gagging device installed which is tagged **DO NOT REMOVE** or **ON HANDJACK**.

5.2.4 The following applies to installed system pressure operated valves or relief valves:

1. Installation of any physical restraint, jacking device or gagging device shall be CONTROLLED by an In-Plant Equipment Clearance Order and tagged appropriately.

2. System pressure operated valves, or relief valves shall NOT be USED as an isolation point of an ECO boundary unless:

   a. Downstream pressure is at atmospheric pressure and not capable of being pressurized (i.e., manway removed and tagged, tank by designed is maintained at atmospheric pressure etc. . .)

   OR

   b. The valve is physically restrained in the required position through the use of an installed jacking or gagging device which is tagged **DO NOT REMOVE**. If the valves can NOT be gagged or jacked, the Safety Department shall be NOTIFIED to approve actions to safely work on the system.

3. Physical restraints, jacking devices, or gagging devices shall NOT be APPLIED to a valve in an operable system without a 10 CFR 50.59 evaluation which is reviewed by the PNSC and approved by the Plant General Manager, Vice President – Turkey Point Nuclear Plant and Chief Nuclear Officer.

5.2.5 Valves required to be operated or repaired during the performance of the work order shall NOT be tagged except for:

1. When re-packing a valve on the backseat, the valve shall be tagged in the BACKSEATED position and additional ECO boundaries shall be established (as necessary) to ensure the valve is subject only to pressure from a static elevation head of water or a system pressure less than 50 psig.

5.2.6 Vents and drains that are being repaired shall have a step in the ECO for positioning the valve when the ECO is released.

5.2.7 MSIVs shall be controlled as follows: (not applicable in Mode 5 less than 150°F, Mode 6, or Defueled)

1. Tag MSIV control switches in CLOSE for administrative control of switches.
2. Pull and tag fuses for 1 train of solenoids for each MSIV.
3. If loss of instrument air, or power to the remaining train of MSIV solenoids occurs, refer to check valve requirements.

CAUTION

Draining systems, which contain environmentally hazardous chemicals such as oil or hydrazine, shall be conducted in accordance with 0-ADM-015,1, Chemical Control Program.

5.2.8 Drain valves used for draining a fluid within the ECO boundaries shall be throttled and the Drain System into which it is draining shall be monitored to ensure that this Drain System can accept the flow rate from the drain without over flowing.

1. This shall be designated as a step in the ECO prior to the step to tag the drain valve. This step should state throttle the drain valve, (Valve Number), to the flow rate of Drain System.
2. When opening a drain or vent valve on a filled or pressurized system and fluid or gas does NOT flow from the valve, notify the SRO to request that Mechanical Maintenance try and unplug the drain. If the drain can NOT be cleared, add a caution statement to the ECO delineating the clogged valve and the potential for the system to still be pressurized.

5.2.9 If the need arises to add vents or drains to an existing ECO, the US shall grant permission to modify the ECO as required. A boundary modification is NOT required solely to add vents or drains.

5.2.10 When a blocking device is installed on a valve, that valve/component shall be declared out of service, unless a 10 CFR 50.59 evaluation is written to address the stem block.

1. When determining which component will be out of service, assume the stem block fails and the valve travels to the worst case position.

5.2.11 The valve operator used to manipulate floor valves shall be locked in its storage location when NOT in use.

5.2.12 A solenoid valve should NOT be used as a pressure boundary isolation if a manual isolation valve is readily available.

1. When a solenoid operated valve is used for an ECO boundary and the failure mode is NOT clear, request assistance from Engineering or Instrument and Control Departments to determine the correct failure mode.

2. When a solenoid operated valve is used and it does NOT fail in the required position, it shall be blocked or gagged in the required position and an ECO tag shall be attached to the blocking device.

5.2.13 If NO other means of isolation exists, check valves may be used as an isolation point of an ECO boundary, provided prior PNSC review, Nuclear Joint Safety Committee (NJSC) and Plant General Manager approval is obtained. The following additional measures shall be taken:

1. The check valve shall be verified to be holding pressure prior to commencement of work.

2. A drain, open flanges, or other means of draining shall be continuously monitored for the duration of the work to ensure the check valve is NOT back leaking.

3. If the job is not being actively worked, constant MONITORING may be relaxed to a periodicity designated by Operations.

4. Place a note in the Instructions block of the ECO Form explaining that a check valve is part of the ECO boundary.

5. ECO holders shall be notified that a check valve is part of the boundary.

6. Nuclear Joint Safety Committee (NJSC) Review Form shall be used.

7. During outages, Risk Assessment Team review is required for issues that involve RCS inventory.

5.2.14 Operation of Components within an ECO Boundary

1. With the permission of the SM/US/WCCS/NWE/FS/SRO, Maintenance personnel may MANIPULATE the component that is under repair or test only to the extent necessary to facilitate repairs or job completion.

2. All other component manipulations during the course of the repair shall be PERFORMED by qualified operators.

3. Instrument and Control personnel are ALLOWED to manipulate valves downstream of the main instrument root valves (five-valve manifold, internal isolations, etc.) for the performance of maintenance and calibrations. Instruments with single root isolations may be MANIPULATED by I&C personnel provided IV provisions of the NPWO are followed.

4. Components within an ECO boundary may be manipulated by maintenance with approval from the SRO provided a restoration step is included on the ECO.

5.3 Electrical Practices

5.3.1 A component hand switch should NOT be used as an isolation point for establishing an ECO boundary for maintenance activities.

1. Hand switches/control switches may be used for isolation only for purpose of administrative control.

NOTES

- *Only a manually operated switch, visible air break or a switch that can be locked or blocked in the open position will be regarded as clearing a circuit.*
- *In 4.16kv switchgear and 480 volt load centers, breakers shall be racked-out.*
- *4.16kv DC control power fuses are not tagged unless specifically required when maintenance is performed on control circuit.*
- *In 480 volt Motor Control Centers, molded case breakers shall be opened*
- *Following notification to all applicable controllers, a racked out and tagged 4.16kv switchgear, 480 volt load center breaker, or a reactor trip circuit breaker may be placed in the test position if required.*

5.3.2 To de-energize components from 4160 volt power, the appropriate 4160 volt switchgear breakers shall be racked out and the breaker cubicle door tagged.

5.3.3 To de-energize a component powered from a 480 volt load center, its breaker shall be opened and racked out and tagged on the breaker cubicle door.

5.3.4 To de-energize a component powered from a 480 volt Motor Control Center (MCC).

1. Normal method:

   a. The appropriate molded case breaker shall be placed in OFF and tagged on the attached lug.

   b. A Ty-wrap shall be placed on the locking device.

2. Alternate Method – used when the breaker needs to be cycled for testing without the equipment operating (i.e., Safeguards, CCW System Flow Balance).

   a. The appropriate molded case breaker shall be placed in OFF.

   b. The line starter contacts for all three phases shall be removed and tagged.

   c. Control power fuses for any related fan dampers shall be removed and tagged

5.3.4.2 (Cont'd)

d. The line starter contacts (and fuses, if applicable) shall be placed in a transparent bag and affixed with the related ECO tag(s) to the attached lug.

e. The molded case breaker should be placed in ON.

f. Completed form similar to Attachment 6 shall be affixed to breaker.

5.3.5 A local knife switch will be verified as open and be tagged OPEN.

5.3.6 To remove component DC control power, the appropriate fuses shall be removed and the fuse holder shall be tagged or the DC control power breaker shall be tagged OFF.

5.3.7 Motor Heater Breakers

1. Motor space heaters shall NOT be included in an ECO order if the motor is being used for an ECO boundary only.

2. Motor space heaters shall only be included in an ECO if the motor is being removed or if requested.

5.3.8 Electrical grounds shall not be installed unless they are delineated as a restoration step with no tag on the equipment clearance order.

5.3.9 Fuses

1. ECO tags shall NOT be placed on fuses.

2. ECO tags associated with fuses shall be posted on or as close to the fuse holder as practical and in a location where they would be obvious to anyone intending to replace the fuses.

3. Usage of the fuse holder tagging devices is recommended to prevent electrical shock.

NOTES

- *Leads may only be lifted on a component which was previously declared Out of Service.*
- *Lifted leads should NOT normally be used as an ECO boundary. There are times when this is the most appropriate method for assuring personnel safety. Maintaining related equipment in a particular configuration may also be a consideration (e.g., multiple annunciator inputs or same power supply to different components).*
- *Maintenance personnel will be granted access as necessary to sign for verification as required by the SRO.*

5.3.10 Lifted Leads

1. If lifted leads are determined to be an ECO boundary, appropriate discipline (I&C or EM) shall provide input as to lead designations, location and potential related consequences.
2. If the qualified operator is NOT clear as to the exact lead on which to hang the ECO tag, the appropriate discipline (I&C or EM) Journeyman shall identify the lead for the operator to hang and perform concurrent dual verification.

5.4 Tank and Piping System Practices

5.4.1 If necessary for the performance of work; systems, portions of systems, and components that normally operate at temperatures or pressures above ambient shall be vented and drained before work is authorized.

5.4.2 An atmospheric drain or vent between the equipment to be worked and sources of pressure to the equipment should be verified in the open position to depressurize the equipment and to accommodate thermal expansion or contraction.

5.4.3 If a normal depressurization path can NOT be provided within the ECO boundary, other definitive measures shall be taken to verify the system or component is adequately depressurized and drained.

1. These measures may include:
   a. Breaking of flanged connections
   b. Loosening of valve bonnets
   c. Removal of instrument tubing

5.4.4 When placing an ECO on equipment, the high-pressure side (pump discharge) should be ISOLATED prior to low-pressure side (pump suction) to prevent over pressurizing the low-pressure piping. For the same reason, un-isolate the suction (low-pressure) side of the pump first when releasing a clearance.

5.4.5 Hoses placed on vent/drain valves shall be listed/designated on the ECO as a step with NO tag. [Commitment - Step 2.3.5]

5.5 ECO Log

5.5.1 Three ECO files shall be maintained:

1. Unit 3
2. Unit 4
3. Common

5.5.2 Each ECO file should contain executed ECOs filed by system or zone number.

5.6 Intentionally Blank

5.7 ECO Research and Preparation

5.7.1 The US/WCCS/SRO Designee should direct the Reactor Operator or Authorized Operator:

1. To research and write the ECO,

   OR

2. Associate the new Work Order with an existing ECO that has an adequate boundary.
3. If a new Work Order is generated during an outage, the ECO Coordinator responsible for the work order must obtain approval from the Operations Outage Shift Director PRIOR to issuing the new ECO or attaching the new Work Order to an existing ECO.
4. During outages, only the responsible ECO Coordinator can add work orders to a new or existing ECO after obtaining the Operations Outage Shift Directors approval.

5.7.2 The RO or Authorized Operator should:

1. Review approved Master ECOs for possible use.
2. Evaluate the impact to the plant by considering Tech Specs and Risk Significance:
   a. Consider the effects of turning off power.
      (1) When a vital 125 Volt DC or 120 Volt AC breaker will be used as part of a boundary, verify Engineering reviews the impact.
   b. Consider the affects of alignment changes.
   c. Consider mode applicability.
   d. Add appropriate limitations **AND** conditions as required for ECO. [Commitment – PTN Step 2.3.10]

5.7.2 (Cont'd)

3. Verify ECO boundaries are adequate for work to be performed using controlled documents (i.e., prints, procedures and attachments) and, as necessary, the assistance of the requesting discipline.

4. Prepare the new ECO in the computer database as follows:

   a. Placement steps shall be sequentially executed, unless approved by the US/WCCS/SRO Designee and denoted on the ECO Form.

   b. Include steps with no tag for procedure performance, Caution or Information tag placement, and steps for information only.

NOTE

In some situations, checking all components within the ECO boundary may be redundant (i.e., during outages when a system alignment will be performed prior to system startup, etc.). In these cases, checking components within the ECO boundary may be waived by the Shift Manager.

   c. Include restoration steps to verify proper alignment of all components within the ECO boundary. This includes the removal of drain hoses, unless the hose is controlled by a TSA or Temporary Procedure. [Commitment – PTN - Step 2.3.5]

   d. When electrical grounds are to be installed, include steps with no tag to verify removal of those grounds prior to energizing the equipment.

   e. Include restoration steps to verify the position of handwheels on control valves within the ECO boundary, when applicable.

5. Attach appropriate work orders to the new or existing ECO.

6. Notify the US/WCCS/SRO Designee that the new ECO or attached work order is ready for review.

   a. Submit copies of controlled documents used (to be retained in the ECO package).

   b. A hard copy of the unapproved ECO may be printed to aid in the review process.

5.8 ECO Review and Approval

5.8.1 The US/WCCS/SRO Designee shall independently review the ECO or attached work order to:

1. Verify that the specified ECO boundary satisfies the requirements of the activity to be performed.
2. Verify that no active Temporary System Alterations (TSAs) will affect the ECO boundary.
3. Verify that the necessary Fire Protection Impairments (FPIs) have been requested, as required.
4. Verify that Containment Integrity is maintained, as required.
5. Verify that plant conditions (current alignment, other active ECOs, surveillance testing, etc.) will support removal of equipment from service.
6. Verify compliance with Technical Specifications.
7. Determine which steps require use of CDV, and annotate those steps on the ECO.
8. Verify that the sequence of steps is correct.
9. Verify that all appropriate equipment, in addition to the tagged equipment, has been specified to be checked.
10. Verify that Engineering Review has been completed, when applicable.
11. Verify that ECO lists appropriate limitations and conditions required for ECO execution. [Commitment – PTN-Step 2.3.10]

5.8.2 The US/WCCS/SRO Designee shall determine and indicate the following on the ECO Form:

1. Tech Spec related
2. Safety related
3. Risk Significant
4. Load limiting
5. Load threatening

5.8.3 The US/WCCS/SRO Designee shall authorize all ECOs by signing the ECO Form.

5.8.4 A second, independent review by the SM/SRO shall be performed for ECOs affecting Tech Spec or Safety Related to ensure the following:

1. Adherence to Tech Spec Limiting Condition for Operations (LCOs)
2. Containment Integrity is maintained, as required.
3. No adverse impact on redundant equipment or opposite train/unit.
4. Appropriate log entries (EOOS, Outage Risk Assessment, etc.) have been made.

5.8.5 If doubt exists as to whether execution of the ECO will result in the plant being operated in a condition that adversely affects an USFSAR described design function, the SM/SRO shall refer to the questions listed on the 10 CFR 50.59 Applicability Determination/Screening to help determine if a 10 CFR 50.59 Evaluation is needed.

5.8.6 The SM/SRO shall approve all ECOs affecting Tech Spec or Safety Related equipment by signing the ECO Form.

1. The SM shall be notified when a Tech Spec or Safety Related, Risk Significant, or in-service system ECO is being sent out for execution. The notification should include scope of the ECO and equipment affected.
2. The US and RO shall be informed of the ECO execution.

5.8.7 The Operations Manager shall approve the hanging of ECO tags in the Containment during Modes 1 and 2. [Commitment - PTN – Step 2.3.3]

1. ECO tags in the Containment during Modes 1 and 2 shall be made of phenolic material.
2. Phenolic tags shall be attached using the same cable and cable crimps provided for permanent valve tags, OR stainless steel tie-wraps.
3. Phenolic tags must be filled out manually.

5.8.8 When final approval has been obtained, the ECO may be issued to the RO or Qualified Operator to be executed.

NOTE

*The NOMS Clearance Module component **PLACEMENT** and **RESTORATION** electronic signatures are to be used as the official verifications. Signing the computer for another Operator is not allowed except for LLRT or Integrity ECOs. The use of the hard copy (paper) as component position verification and IV should **only** be used when the NOMS Computer System is not available or not functioning correctly.*

5.9 ECO Execution

5.9.1 ECO alignment and tag placement shall be performed by a qualified operator who is knowledgeable of the type and magnitude of the energy, the hazards of the energy, and methods to control it.

5.9.2 The operator shall be briefed on the purpose of the ECO and the conditions that should be established within the ECO boundary for the safe performance of work.

5.9.3 The operator shall be given a copy of the ECO tag hang list form, tags and any other materials used in the development of the ECO pertinent to the implementation of the ECO (prints, EWDs, ETC.)

5.9.4 The ECO alignment and tag placement shall be performed in a step by step manner as specified on the ECO.

1. At the discretion of the SM/SRO, large ECOs may be performed out of order (i.e., Containment Integrity, ILRT, etc.)

2. CDV shall be performed for steps designated by the US/WCCS/SRO Designee.

5.9.5 ECO tags shall be legible and understandable.

5.9.6 ECO tags shall be securely attached to energy isolating devices so that they can not be inadvertently or accidentally detached during use.

1. ECO tagout device attachment shall be of a non-reusable type, attachable by hand, self-locking and non-releasable with a minimum unlocking strength of 50 pounds, AND shall have the general design and basic characteristics of being at least equivalent to a one-piece, all environment nylon cable tie.

5.9.7 The ECO execution shall be stopped and the Control Room/Work Control Center shall be notified immediately for any of the following circumstances:

1. Any step that can NOT be executed as specified.

2. The execution must be suspended.

3. A component is locked and NO lock is referenced on the ECO.

4. A component is unlocked and a lock is referenced on the ECO.

5.9.7 (Cont'd)

5. A component cannot be positively identified using standard plant labeling

   a. If the component is not tagged with a unique plant component tag, the following should be considered for identification:

      (1) Verification of the component designations using plant drawings

      (2) Engineering walkdown and identification of the component

      (3) Independent Operations personnel agreement on the component designation

   b. When these situations are identified steps shall be taken to obtain the correct identification tags for the component.

5.9.8 The US/WCCS/SRO Designee shall resolve any discrepancy and indicate by initialing on the ECO Form.

5.9.9 The first Placement block of the ECO shall be initialed on the hard copy as each step is performed and the computer records updated as soon as practical.

5.9.10 The physical result of each alignment action should be observed during the tagging operation to ensure the desired conditions are being met for safe work.

1. If undesired conditions are encountered, the tagging operation shall be stopped and the US/WCCS/NWE consulted for resolution prior to continuing.

5.9.11 Independent Verification of ECO steps shall be performed by a second qualified operator and shall be performed in accordance with 0-ADM-031, INDEPENDENT VERIFICATION. Independent verification is required for systems listed in 0-ADM-031, Independent Verification, Enclosure 1, or as deemed necessary by the SM/US/WCCS/SRO.

1. The second Placement block of the ECO shall be initialed on the hard copy as each IV is performed and the computer records updated as soon as practical.

2. IV steps may be performed in any order.

3. Caution, MOV Test , and Information tags, and procedure/information steps do NOT require IV.

4. CDV of THROTTLED or BACKSEATED valves replaces IV. Operators performing CDV of these valves shall place their initials/date/time in the 2nd Placement block of the appropriate step.

5. Verify ECO completion and sign for tags verified executed on the ECO Form as soon as practical.

5.9.12 The completed ECO shall be returned to the Control Room or Work Control Center for review.

5.9.13 The US/WCCS shall:

1. Ensure that the Tech Spec related or Risk Significant equipment is placed in the EOOS Log and/or Outage Risk Assessment Notebook, as required.

2. Notify the ECO Controller that the ECO has been executed and that the Control Form may be picked up in the Work Control Center or Control Room.

3. Ensure that the ECO is filed under the appropriate system/zone number in the ECO File.

5.10 ECO Release

NOTE

*Only original ECO Control Forms shall be used to release an ECO. These can be recognized by the colored border and Unit designator, OR, if colored paper was not available, the form was stamped **Original** with Red ink.*

5.10.1 The US/WCCS/SRO Designee shall perform the following:

1. Review the ECO package AND the computer to ensure that all Holders and Controllers have released the ECO.

2. Verify (if paper forms are used) that all original Control Forms are present and signed off.

   a. If any Control Forms were NOT accepted or signed on, the Responsible Department shall sign on and then release, noting that no work was performed.

   b. If an original Control Form was lost, a duplicate may be made. The new form shall be labeled **DUPLICATE – ORIGINAL LOST**, and the responsible Controller shall sign on and then off after verifying all work for that discipline is complete and all holders have released the ECO.

3. When all Control Forms have been signed off and returned to Operations, the ECO may be released.

5.10.2 The RO or Authorized Operator shall prepare the ECO Release as follows:

1. Verify all Control Forms are accounted for.

NOTE

In some situations, checking all components within the ECO boundary may be redundant (i.e., during outages when a system alignment will be performed prior to system startup, etc.). In these cases, checking components within the ECO boundary may be waived by the SM.

2. Verify that the ECO includes restoration steps to verify the following:

   a. Proper alignment of all components within the ECO boundary, using documents such as system prints, the body of the procedure and attachments to develop the alignment. This includes the removal of drain hoses, unless the hose is controlled by a TSA or Temporary Procedure. [Commitment – PTN – Step 2.3.5]

   b. Components worked on within an ECO boundary SHALL have positions verified through a specific restoration step during the ECO release. This verification cannot be waived by a Shift Manager.

   c. Removal of any electrical grounds prior to energizing the equipment.

      (1) Electrical Maintenance Supervisor or GML shall attach a completed log sheet from the Electrical Maintenance Grounds Tracking Log for the affected equipment to the ECO when releasing.

3. Using controlled documents, such as system prints, the body of the procedure and attachments, specify the component positions and releasing sequence for all ECO steps. Releasing steps shall be sequentially executed, unless approved by the US/WCCS/SRO Designee, and denoted on the ECO Form.

4. Sign the Release Review block on the ECO Form.

5.10.3 The US/WCCS/SRO Designee shall independently verify:

1. The specified restoration positions and sequence of steps for the Release are correct.

2. In addition to the tagged components, verify that the necessary steps have been added to check all components within the ECO boundary to be properly aligned.

3. If a procedure is to be used to place the equipment in service, verify that there is a step on the Release to perform the procedure.

4. The US/WCCS/SRO Designee shall determine which steps require the use of CDV and annotate those steps on the ECO Form.

5.10.4 The US/WCCS/SRO shall determine if any tag sharing warnings were received upon release of the ECO and verify that multiple sections that are approved for release and awaiting execution are performed in the correct order to ensure configuration control is maintained.

5.10.5 The US/WCCS/SRO Designee shall authorize the removal of each tag and the re–positioning of each component by signing the Release Authorized block on the ECO Form.

1. This signature denotes that all Control Forms for that ECO have been released and are accounted for.

5.11 ECO Tag Removal and Equipment Restoration

NOTE

*The NOMS Clearance Module component **PLACEMENT** and **RESTORATION** electronic signatures are to be used as the official verifications. Signing the computer for another Operator is not allowed except for LLRT or Integrity ECOs. The use of the hard copy (paper) as component position verification and IV should **only** be used when the NOMS Computer System is not available or not functioning correctly.*

5.11.1 If electrical grounds were installed, the US/WCCS/SRO Designee shall contact the Electrical Department to sign for electrical ground removal verification.

1. The Electrical Department General Maintenance Leader/Supervisor shall authorize removal of the electrical grounds.

2. Electrical Department personnel shall sign the applicable step on the ECO form indicating grounds have been removed.

3. Electrical Department Supervision or GML shall independently verify that grounds have been removed and sign the applicable steps on the ECO.

5.11.2 The operator releasing the ECO shall be briefed to ensure the intent of the ECO is understood for the safe release of the ECO.

5.11.3 ECO tags shall be removed and components realigned in the sequence specified on the ECO Form.

1. If a tag from a different ECO is found on a component that conflicts with the realignment, an ECO tag is found to be missing, or an ECO tag is found on the wrong component, the operator shall immediately stop and notify the US/WCCS/SRO Designee of the discrepancy.

2. The US/WCCS/SRO Designee shall resolve any problems and note resolutions on the ECO Form, initialing any notes or changes.

3. The first Restoration block of the ECO shall be initialed on the hard copy as each step is performed and the computer records updated as soon as practical.

5.11.3 (Cont'd)

4. CDV shall be performed for steps designated by the US/WCCS/SRO Designee.

5. After the system piping is filled and pressurized, visually check all vent and drain valves to verify that they are fully seated and NO visible leakage is observed. If leakage is noted, attempt to seat the valve. If the valve can NOT be seated, immediately notify the US/WCCS/SRO Designee and submit a PWO to repair the valve.

5.11.4 Independent Verification of releasing steps shall be performed by a second Qualified Operator in accordance with 0-ADM-031, INDEPENDENT VERIFICATION for systems listed in 0-ADM-031, INDEPENDENT VERIFICATION, Enclosure 1.

1. The IV shall include verification that the proper tag was removed by the first operator.

2. The second Restoration block on the ECO shall be initialed on the hard copy as each IV is performed and the computer records updated as soon as practical.

3. IV steps may be performed in any order.

4. CDV of THROTTLED or BACKSEATED valves replace IV. Personnel performing CDV of these valves shall place their initials in the second Restoration block of the appropriate step.

5.11.5 The completed ECO Release shall be returned to the Control Room or Work Control Center for review.

5.11.6 The US/WCCS/SRO Designee shall:

1. Verify completion of the ECO Form.

2. Verify that FPIs issued for this ECO have been removed.

3. Update the EOOS Log and Outage Risk Assessment Notebook, as required.

4. Review IST and ITOP requirements prior to declaring a component Operable.

5. Ensure that the ECO is closed out.

5.12 ECO Boundary Modification

5.12.1 When notified that an ECO requires a Boundary Modification, the SM/SRO Designee shall determine if the Boundary Modification can be performed based upon a review of the following:

1. Current plant conditions
2. Tech Specs/EOOS entries
3. TSA log
4. Temporary procedures in effect
5. Questions listed on the Safety Related ECO Evaluation Sheet [Commitment - Step 2.3.6]
6. Work in progress on current ECO section and review of additional work orders to be added after the boundary mod is completed.

5.12.2 If the Boundary Modification can be performed, the SM/SRO Designee shall perform the following:

1. For Work Stoppage Boundary Modification, verify that all original ECO Control Forms have been returned to Operations or all Holders have signed off the electronic form.
2. **Lock the ECO section** to prevent other Controllers or Holders from signing on the existing ECO while the boundary mod is being executed.
3. Direct the RO or Authorized Operator to modify the ECO as required in accordance with the type of ECO Boundary Modification to be performed.
   a. When reducing an ECO, verify by adding additional steps, that all components now outside the new boundary are in their correct position by use of prints, procedures and attachments.
   b. Add any special instructions for the Boundary Modification as informational steps on the ECO. For Boundary Modifications for Test, this should include a step on the ECO to perform the test.
   c. Add steps to verify that electrical grounds have been removed, as required.
   d. Verify that no other Boundary Modification is in effect on the ECO.
4. Review the Boundary Modification for accuracy and completeness.
   a. The review and approval cycle shall be performed in the same manner as a new ECO, however, the second SM/SRO Designee independent review is not required.
   b. Sign the ECO Boundary Modification Form, authorizing performance.

NOTE

If the work stoppage boundary modification only applies to a specific discipline or activity, it should be specified by the controllers on the boundary modification form and work may continue on other work orders not affected by the boundary modification.

5.12.3 For a Work Stoppage Boundary Modification, perform the following:

1. Direct a Qualified Operator to perform the Boundary Modification.
   a. After the system is filled or pressurized, verify no leakage.
2. When the Boundary Modification is complete, notify the ECO Controller(s) to pick up their ECO Control Form(s) and a copy of the modified ECO. Controllers and Holders must sign on to the Control Form for the new ECO section.
3. Verify that the computer is updated for the changes made.

5.12.4 For a Non-Work Stoppage Boundary Modification, perform the following:

1. Direct a Qualified Operator to perform the Boundary Modification.
   a. After the system is filled or pressurized, verify NO leakage.
2. When the Boundary Modification is complete, notify the ECO Controller(s) to pick up a copy of the modified ECO.
3. Verify that the computer is updated for the changes made.

NOTE

Within 5 days of execution of an ECO Boundary Modification for the purpose of testing, the boundaries should be restored or the ECO should be released.

5.12.5 For a Boundary Modification for the purpose of testing, perform the following:

1. Direct a Qualified Operator to perform the Boundary Modification.
   a. After the system is filled or pressurized, verify NO leakage.
2. Notify the test controller that the test may be performed.
3. Restore the ECO Boundary as necessary when requested by the test controller.
4. When the boundary has been restored, notify the ECO Controller(s) to pick up their ECO Control Form(s) and a copy of the modified ECO. Controllers and Holders must sign on to the new ECO section.
5. Verify that the computer is updated for the changes made.

5.13 ECO Revision

5.13.1 ECO Revision - is a modification to an existing ECO that does not alter the ECO ISOLATION boundary. US/SRO approval is required although it is not necessary to route boundary modification forms. Revisions may be used:

1. For the addition of restoration steps after execution of the ECO section.
2. For the addition or removal of tags that do not require work stoppage, affect the boundary or conflict with work orders assigned to the original ECO section.
3. To remove tags that were incorrectly issued or issued on the wrong equipment during the ECO execution and before acceptance of the ECO.
4. To add steps to include information tags or update annunciator panels.
5. To correct errors of a clerical nature, such as typographical errors in valve nomenclature or component location.

5.13.2 When performing a revision, the following method shall be used:

1. SRO approval prior to implementation of the revision.
2. The preparer shall verify the Original ECO section is locked to prevent controllers and holders from signing on during the revision process.
3. The preparer of the ECO revision shall notify all Controller(s) and get their concurrence prior to implementation.
4. The Controller(s) shall Notify all Holders of the Revision.
5. The ECO Controller/Coordinator for each discipline shall obtain a copy of the revised ECO. If The ECO Holder form is used, it shall be updated by the Controller of that discipline.

5.14 Bus Outages (Bus Clearances)

NOTE

This procedure section refers ONLY to Electrical Isolation Controls for 4KV Switchgear components.

5.14.1 All 4KV sources of power to affected 4KV bus shall be isolated by the following methods or combination of methods:

1. 4KV breaker racked out on Bus Clearance (Breaker may or may not be on affected bus)
2. EDG disabled on Bus Clearance
3. Switching order to OPS personnel and referenced by a step in the Bus Clearance
4. 480V LC bkrs racked out on Bus Clearance
5. Some other acceptable means (i.e., power leads determined and tagged on Bus Clearance)

CAUTION

In the event As Found meggering of the 4KV bus is necessary, the department performing the meggering is required to verify a visible air gap on all breakers on that bus, and to station a person whose sole responsibility will be to maintain that air gap.

5.14.2 If Bus Outage Tags are to be used, a Bus Outage Caution clearance shall be generated to hang the Bus Outage Tags on the individual Danger tags. The Bus Outage Tags shall be removed prior to the release of the Bus Clearance tags.

5.14.3 For ECOs which require the 4KV breaker as isolation which are approved after the bus outage commences and had not been previously tagged, a step shall be added to the Bus Outage Caution Clearance so that the Danger Tag can be hung with a Bus Outage Tag (Sleeve)

1. The Controller for the new ECO shall become an active holder of the Bus Clearance on his department's control form.

OR

2. For ECOs which are releasing the danger tag from the breaker currently on a Bus clearance, the Bus Outage Caution Clearance shall be revised to remove the Bus Outage Tag(sleeve) prior to removing the danger tag.

5.14.4 The Bus Outage Caution Clearance will be a separate section that is approved and executed after the Bus Clearance has been executed. This clearance will issue Bus Outage Tags (sleeves) for all 4160V breakers in the Bus Clearance that are not providing Bus isolation and currently are danger tagged. These sleeves will be hung over the danger tags and do not require independent verification.

1. If a Danger tag is not removed, a Bus Outage Tag shall be used to alert maintenance personnel that electrical isolation for that breaker is provided by the Bus Clearance.

2. Upon restoration of the Bus Clearance, the individual breakers will be verified in its original position (normally Racked Out) and the Bus Outage Tags shall be removed.

   a. Any Caution Tags or Bus Outage Tags hung in reference to the Bus Clearance shall be removed prior to releasing the Bus Clearance.

5.14.5 The Controller of the Bus Clearance shall be the SM and one individual from each department affected by that ECO.

1. Each department head shall designate the Controller for that department.

2. That individual must have supervisory jurisdiction over all of the affected holders.

3. All Controllers of the Bus Clearance shall accept the Bus Clearance as the electrical isolation for their individual ECOs before Bus Outage Tags are hung superseding the individual ECO Tags.

4. The Controllers' signature on his Bus Clearance Control Form signifies his permission to hang Bus Outage Tags.

5.14.6 Each craft performing work on the 4KV bus shall have a supervisor become a Controller on the Bus Clearance prior to commencing any work related to the bus outage.

1. This shall be done by attaching the new WO to the Bus Clearance.

5.14.7 No Boundary Modification for the purpose of testing shall be performed on the Bus Clearance unless all other affected ECOs have had their original boundaries restored.

1. The one exception is a Boundary Modification for testing of the affected sequencer under the condition that all 4KV breakers on the affected 4KV bus are racked out with test umbilicals disconnected prior to sequencer testing.

2. During the sequencer Boundary Modification for the purpose of testing, all individual Bus Clearance Control Forms are accounted for and no work is authorized on the affected 4KV bus.

5.15 Review of ECOs

5.15.1 The Shift Manager or designee shall perform a monthly review of all ECOs active for greater than 30 days.

NOTE

ECOs written for the long-term administrative control of equipment, which is to be abandoned or will require more than 30 days to repair, are not subject to the 30-day duration limit, and do not need an evaluation every 30 days per the ECO in Effect Longer than 30 Days Sheet, provided there has been a condition report generated with an action item to release the administrative ECO once the condition has been corrected. They are still subject to the audit and to the 10 CFR 50.59 Applicability Determination/Screening Review per the Safety Related ECO Evaluation Sheet after 60 days.

1. An inspection of the ECO tags shall be performed. If a unit is in Mode 4, 5, or 6, the inspection should be a spot check only.

2. Damaged or missing tags shall be replaced.

3. Copies of each outstanding ECO shall be routed by transmittal to the respective Controllers for their review and feedback on the clearance status.

4. Copies of safety related ECOs active for greater than 60 days at the time of the review shall have an Attachment 3 completed by the Operations Support Supervisor/Designee (not applicable if a 10 CFR 50.59 evaluation is attached to the clearance).

5. ECOs greater than 60 days at the time of the review shall be checked to ensure previous required reviews have been completed and are attached to the ECO. If the reviews are not attached to the ECO, the responsible department manager shall be notified to resolve the discrepancy.

6. ECOs active for greater than 90 days at the time of the review shall be routed for review by appropriate plant management with the purpose of expediting their release.

7. The SM shall document this review by initialing 0-OSP-200.1, SCHEDULE OF PLANT CHECKS AND SURVEILLANCES, when the review has been completed.

5.15.2 The ECO Controllers shall review each ECO provided by the Shift Manager and:

1. Request release, or
2. Document the reason the ECO can NOT be released within 30 days, and provide the estimated release date the ECO in Effect Longer than 30 Days Form.
3. Return the completed forms to the Shift Manager.

5.15.3 The ECO Controller review shall be documented by attaching the ECO in Effect Longer than 30 Days Form to the ECO.

5.15.4 ECOs requiring release or corrective action shall be reported to the Assistant Operations Manager.

5.15.5 The Operations Support Supervisor/Designee shall perform a review of 10 CFR 50.59 Applicability Determination/Screening of all safety related ECOs when requested by the SM, or scheduled by 0-OSP-200.1, Schedule of Plant Checks and Surveillances.

1. The Shift Manager shall provide the Operations Support Supervisor/Designee with copies of ECOs requiring review.
2. The review (if not previously performed and attached to the ECO) shall be documented on the Safety Related ECO Evaluation Sheet.
3. ECOs requiring release or corrective action shall be reported to the Assistant Operations Manager.
4. Return the completed safety review to the Shift Manager.

5.15.6 The safety review shall be documented by attaching the Safety Related ECO Evaluation Sheet to the ECO.

5.15.7 The Operations Support Supervisor/Designee shall document this review (per the Safety Related ECO Evaluation Sheet) by initialing 0-OSP-200.1, SCHEDULE OF PLANT CHECKS AND SURVEILLANCES, when the review has been completed.

5.16 ECO Computer Failure

5.16.1 When the NOMS ECO Computer System is not available immediately, call the help desk to get NIS assistance or the NOMS Operations Administrator. If NIS cannot restore the NOMS ECO System in a timely manner, continue with this procedure section.

5.16.2 If an ECO is required to be issued during this failure, fill out forms similar to Attachment 1 of this procedure and Attachments 2 and 3 of 0-ADM-212, IN-PLANT EQUIPMENT CLEARANCE ORDERS. Use the same guidance as Steps 5.6 through 5.8 without the computer verification requirements.

5.16.3 If an active ECO is required to be released during this failure, fill out forms similar to Attachment 1 of this procedure and Attachments 2 and 3 of 0-ADM-212, IN-PLANT EQUIPMENT CLEARANCE ORDERS. Use the same guidance as Subsections 5.9 and 5.10 without the computer verification requirements.

CAUTION

The Shift Manager shall ensure all Controllers and Holders have signed the hard copies (paper) of the ECO Controller and Holder Forms similar to Attachments 2 and 3 of 0-ADM-212, IN-PLANT EQUIPMENT CLEARANCE ORDERS, when preparing boundary modifications and/or revisions with the NOMS System out of service.

5.16.4 If a boundary modification or revision is required during this failure, fill out forms similar to Attachment 4 of 0-ADM-212, IN-PLANT EQUIPMENT CLEARANCE ORDERS, and follow the guidance of Subsections 5.11 and 5.12 of this procedure without the computer verification requirements.

END OF TEXT

ATTACHMENT 1
(Page 1 of 4)

ECO FORM

ECO COVER SHEET

1	Unit Number:	2	Equipment Clearance Order Number:
4	Equipment/System to be Tagged:		
5	Reason for Equipment Clearance:		
6	Opened By:	3	System Number:
10	Closed By:		

DATE _____
DOCT _____
SYS _____
ITM _____

12	Equipment Clearance Order Verified Correctly Hung							
	Conducted By	Date	Conducted By	Date	Conducted By	Date	Conducted By	Date

EOOS Log Update (Upon Releasing) ☐ YES ☐ NO ☐ N/A (Circle One)

Release Review: _____ Date: _____ Time: _____

SAMPLE

W97:JE/mrg/slb/ev

ATTACHMENT 1
(Page 2 of 4)

ECO FORM

ECO SECTION COVER SHEET

1	Unit Number:	2	Equipment Clearance Order Number: Equipment Clearance Order Section:
3	System Number:		
4	Equipment/System to be Tagged:		
5	Reason for Equipment Clearance:		

DATE _____
DOCT _____
SYS _____
ITM _____

6 and 8

Prepared By:		
US Reviewed By		
SM Reviewed By		
Verified Executed		
Work Complete		
Equip I/S Boundary Ck'd		
Grounds Removed Verif		
Release Review By		
Release Authorized By		
Tags Verif Removed By		

7

Dept	Controller Accepted	Date/Time	Controller Release	Date/Time
OPS				
MECH				
ELECT				
PROJ				
ENG				
RELAY				
I/C				
HP				
OTHER				
OTHER				
OTHER				

9 Safety Review:

Prepared By:	N – None
US Reviewed By	No
SM Reviewed By	No
Verified Executed	No
Work Complete	No
Equip I/S Boundary Ck'd	No

10 Hazards:
11 Special Instructions:

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W97:JE/mrg/slb/ev

SAMPLE

ATTACHMENT 1
(Page 3 of 4)

ECO FORM

TAG HANG LIST FOR ECO

Page _____ of ____

Equipment ID	Equipment Description	Equipment Location	Tag Serial Number	Tag Type	Place Seq	Place Config	1st	2nd	Notes

SAMPLE

ATTACHMENT 1
(Page 4 of 4)

ECO FORM

TAG REMOVAL LIST FOR ECO

Page _____ of ____

Equipment ID	Equipment Description	Equipment Location	Tag Type	Rest. Seq	Rest. Config	1st	2nd	Notes	Tag Serial

SAMPLE

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ATTACHMENT 2
(Page 1 of 1)

ECO IN EFFECT LONGER THAN 30 DAYS

1. **TO:** Shift Manager

2. **FROM:** _____ Operations _____ Engineering _____ QC

   _____ Electrical _____ Mechanical _____ I&C

   _____ Other _____
   Specify

3. Date: _____ CL. No.: _____

   Equip: _____ Sys No.: _____

   Unit: _____ Released: _____

4. Estimated Date of Release: _____

5. Reason for Extension:

   _____ Need Parts _____ Shutdown Item

   _____ Equipment Removed _____ Administrative Control

   _____ Other _____
   Specify

6. Remarks: _____

7. Supervisor/Leader: _____
   Signature

   Date: _____

ATTACHMENT 3
(Page 1 of 1)

SAFETY RELATED ECO EVALUATION SHEET

1. Requested By Shift Manager or Designee:
   a. ECO No.: _____
   b Date Approved: _____
   c. System: _____
   d. Affected Equip: _____
   (Description and No.)

2. Reviewed By Operations Support Supervisor or Designee:
   a. How does this ECO affect the running units?

   b. How does this ECO affect the Technical Specification?

   c. Reasons for being out of service:

3. 10 CFR 50.59 Applicability Determination/Screening Review:

   A. Perform and attach a 10 CFR 50.59 Applicability Determination/Screening review per 0-ADM-104.

   B. Is a 10 CFR 50.59 evaluation required? YES ☐ NO ☐

4. If Item 3B above is a Yes, route this form to the Engineering Department for a 10 CFR 50.59 evaluation prior to return to the Shift Manager.

REMARKS:

5. If the answer to item 3B is No, sign form and return to Shift Manager.

   Operations Support Supervisor/Designee _____ Date: _____

6. Update 0-OSP-200.1, SCHEDULE OF PLANT CHECKS AND SURVEILLANCES, when this review has been completed.

ATTACHMENT 4
(Page 1 of 1)

BREAKER/VALVE ALIGNMENT SHEET

1. If this form is being used to correct a mispositioned breaker/valve, a 50.59 screening is NOT required.
2. If this form is being used as the work control document to track component manipulations, a 50.59 screening SHALL be performed.

10 CFR 50.59 Screen Questions (See Subsection 5.3 of 0-ADM-104)		
1. Does the proposed activity require a change to the Technical Specifications? **Technical Specifications Reviewed** _____	☐ NO	☐ YES
If YES, request and receive a License Amendment prior to implementation of the activity.		
2. Does the proposed activity involve a change to an SSC that adversely affects an UFSAR described design function?	☐ NO	☐ YES
3. Does the proposed activity involve a change to a procedure that adversely affects how UFSAR described SSC design functions are performed or controlled?	☐ NO	☐ YES
4. Does the proposed activity involve revising or replacing an UFSAR described evaluation methodology that is used in establishing the design bases or used in the safety analysis?	☐ NO	☐ YES
5. Does the proposed activity involve a test or experiment not described in the UFSAR, where an SSC is utilized or controlled in a manner that is outside the reference bounds of that design for the SSC or is inconsistent with analyses or descriptions in the UFSAR?	☐ NO	☐ YES
UFSAR Chapters Reviewed _____		
If questions 2, 3, 4 or 5 are answered YES, a 10CFR50.59 Evaluation shall be performed.		
Prepared by _____ Date _____		

START TASK:
SRO review _____
Date _____

SM Approval _____
Date _____

RESTORATION COMPLETE:
SRO review _____
Date _____

STEP	FS/US/SM Permission (Initial/Date)	BKR/ VALVE ID	DESCRIPTION (Location, System, Train, etc.)	Normal Position (Open/Closed)	Positioned To (Open/Closed)	Positioned To (Initial/Date)	Restored To Normal (Initial/Date)	Verified By (Initial/Date)

ATTACHMENT 5
(Page 1 of 1)

JOINT SAFETY COMMITTEE (JSC) REVIEW FORM

Date: _____

Description of Un-isolable Condition *

_____
_____
_____
_____
_____
_____

* **Provide drawing details and other supporting documents.**

Proposed Mitigating/Contingency Measures (Be Specific)

_____
_____
_____
_____
_____
_____

Additional JSC proposed contingency measures

_____
_____
_____
_____
_____
_____

JSC APPROVAL ☐

JSC REJECTED ☐

Local Joint Advisory Safety Committee (LJASC) _____ / _____
Signature *Print*
Union Committeeman

_____ / _____
Signature *Print*
Company Committeeman

ATTACHMENT 6
(Page 1 of 1)

STARTER MAIN CONTACTS AND FUSE REMOVAL FORM

ECO #:_____ BREAKER #_____

STARTER MAIN CONTACTS ON ALL 3 PHASES HAVE BEEN REMOVED

FUSES HAVE BEEN REMOVED: ____YES ____N/A

OPERATIONS:_____ _____ _____
Signature *Print* *Date*

EM JOURNEYMAN:_____ _____ _____
Signature *Print* *Date*

EM GML:_____ _____ _____
Signature *Print* *Date*

AFFIX THIS SHEET TO BREAKER PANEL

REMOVE AFTER RESTORATION

FINAL PAGE

(ROTSKO)

Facility:	Turkey Point	Task No:	
Task Title:	Read a Survey Map and Apply RWP Requirements	Job Performance Measure No:	A.3 - Radiation Control (RO & SRO)
K/A Reference:	G2.3.10 (2.9/3.3)		
Applicant:		NRC Examiner:	
Facility Evaluator:		Date:	
Method of testing:	Classroom (Modified)		
Simulated Performance	Yes	Actual Performance	
Classroom	Yes	Simulator	Plant

Read to the applicant:

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:

1. You are a Unit Supervisor assigned as the Work Control Center Supervisor.
2. A Primary Operator is assigned the task of hanging an ECO on the 4P25B 4A RHR Pump Room Sump Pump. One of the tags to be hung involves closure of 4P25B discharge valve 4-12-010 which is located in a tight area between the sump pump and an adjacent wall.
3. You are holding a pre-job brief with the Primary Operator and are discussing RWP requirements and ALARA concerns.

Task Standard:

1. From the survey map & RWP, identify maximum stay time based on the highest general area radiation in the room.
2. From the survey map, identify the area of highest surface contamination in the room.
3. From the survey map, identify the location of any hot spots in the room.
4. From the survey map, identify the lowest dose location in the room where the operator should stand in the event that he/she is required to wait there.

Required Materials:

1. Radiation Work Permit 07-005, "Radiological Controlled Area, Operations Department, Plant Operations"
2. PTN Unit 4 Residual Heat Removal Equipment Monthly HP Survey Map, Log # 07-0603
3. 0-HPS-025.1, "General Posting Requirements for Radiological Hazards"
4. 0-ADM-600, "Radiation Protection Manual"

General References:

1. 0-HPS-025.1, "General Posting Requirements for Radiological Hazards"
2. 0-ADM-600, "Radiation Protection Manual"
3. 0-ADM-604, "Radiological Protection Guidelines and Practices"
4. 0-HPS-020, "Radiation Surveys"
5. 0-HPS-021, "Surface Contamination Surveys"
6. PTN Digipix System 61 Picture of 4A RHR Pump Room Sump Pumps 4P25A & 4P25B
7. PTN Dwg 5610-M-3061, Sheet 3, "Waste Disposal System Liquid Drain Headers & Sumps"

Initiating Cue:

For the purposes of ensuring ALARA principles are observed while this ECO is hung, answer the following using the references provided:

1. Based on the highest general area dose rate in the 4A RHR Pump Room, determine the maximum stay time allowed under this RWP.
2. Identify the area of highest surface contamination in the 4A RHR Pump Room.
3. Identify any "hot spots" in the 4A RHR Pump Room.
4. Identify the lowest dose location to stand should the operator be required to wait in the 4A RHR Pump Room.

Time Critical Task: No

Validation Time: 40 minutes

INSTRUCTIONS TO APPLICANT

READ TO APPLICANT:
WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, 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.

HAND JPM BRIEFING SHEET TO APPLICANT AT THIS TIME!

INITIAL CONDITIONS:

1. You are a Unit Supervisor assigned as the Work Control Center Supervisor.
2. A Primary Operator is assigned the task of hanging an ECO on the 4P25B 4A RHR Pump Room Sump Pump. One of the tags to be hung involves closure of 4P25B discharge valve 4-12-010 which is located in a tight area between the sump pump and an adjacent wall.
3. You are holding a pre-job brief with the Primary Operator and are discussing RWP requirements and ALARA concerns.

INITIATING CUE:

For the purposes of ensuring ALARA principles are observed while this ECO is hung, answer the following using the references provided:

1. Based on the highest general area dose rate in the 4A RHR Pump Room, determine the maximum stay time allowed under this RWP.
2. Identify the area of highest surface contamination in the 4A RHR Pump Room.
3. Identify any "hot spots" in the 4A RHR Pump Room.
4. Identify the lowest dose location to stand should the operator be required to wait in the 4A RHR Pump Room.

NOTE 1: The only materials that may be made available by computer are plant procedures and drawings subject to evaluator approval.

NOTE 2: Provide JPM Answer Sheet along with JPM Briefing Sheet

TERMINATION CUE:

When you feel that you have satisfactorily completed the assigned task, hand your JPM briefing sheet back to me.

Do you have any questions?

You may begin.

Denote critical steps with a check mark (✓)

Start Time _____

STEP 1 : ✓	Based on the highest general area dose rate in the 4A RHR Pump Room, determine the maximum stay time allowed under this RWP.	____ SAT ____ UNSAT
STANDARDS:	Determines the maximum stay time allowed under this RWP (based on highest 4A RHR pump room general area dose) = (25 mrem / 24 mrem/hr) = 1.04 hr ± 5% (or 62.5 min ± 5%)	
NOTES:	*1. 25 mrem is the dose at which the DAD alarm is set per RWP 07-0005.* *2. 24 mrem/hr is the highest general area radiation dose shown on the 4A RHR pump room survey map (in vicinity of E-W run of RHR piping at the HRA boundary).*	

STEP 2 : ✓	Identify the area of highest surface contamination in the 4A RHR Pump Room.	____ SAT ____ UNSAT
STANDARDS:	Determines the area of highest surface contamination in the 4A RHR Pump Room is on the 4A RHR pump.	
NOTES:	*From the survey map, swipe #34 has the highest surface contamination in the 4A RHR pump room (1582 dpm/100 cm^2). It is located on the 4A RHR pump itself.*	

STEP 3 :	Identify any "hot spots" in the 4A RHR Pump Room.	____ SAT ____ UNSAT
STANDARDS:	Determines that there are no hot spots in the 4A RHR pump room.	
NOTES:	*From the survey map the highest contact dose is 200 mR/hr. Since this point is inside the High Rad Area, it does not qualify as a "hot spot" as defined in 0-HPS-025.1, section 4.12. Inside a High Rad Area, the minimum contact dose for a "hot spot" is 500 mR/hr.*	

STEP 4 : ✓	Identify the lowest dose location to stand should the operator be required to wait in the 4A RHR Pump Room.	____ SAT ____ UNSAT
STANDARDS:	Determines from the survey map that the best place to wait in the 4A RHR pump room is the far SW (upper left on map) corner of the room.	
NOTES:	*From the survey map, the lowest general area dose in the 4A RHR pump room is 4 mR/hr which is in the far SW corner of the room (top left on the survey map). To minimize dose while waiting, one should wait in the lowest dose area in the room.*	

Termination Cue:	Applicant completes answering issues posed in initiating cue.	**STOP**

Stop Time _____

JPM ANSWER SHEET - ANSWER KEY

Answer the following questions:

1. Based on the highest general area dose rate in the 4A RHR Pump Room, determine the maximum stay time allowed under this RWP.

ANSWER: Determines the maximum stay time allowed under this RWP (based on highest 4A RHR pump room general area dose) = (25 mrem / 24 mrem/hr) = 1.04 hr ± 5% (or 62.5 min ± 5%)

BASES: *25 mrem is the dose at which the DAD alarm is set per RWP 07-0005.*

24 mrem/hr is the highest general area radiation dose shown on the 4A RHR pump room survey map (in vicinity of E-W run of RHR piping at the HRA boundary).

2. Identify the area of highest surface contamination in the 4A RHR Pump Room.

ANSWER: Determines the area of highest surface contamination in the 4A RHR Pump Room is on the 4A RHR pump.

BASIS: *From the survey map, swipe #34 has the highest surface contamination in the 4A RHR pump room (1582 dpm/100 cm^2). It is located on the 4A RHR pump itself.*

3. Identify any "hot spots" in the 4A RHR Pump Room.

ANSWER: Determines that there are no hot spots in the 4A RHR pump room.

BASIS: *From the survey map the highest contact dose is 200 mR/hr. Since this point is inside the High Rad Area, it does not qualify as a "hot spot" as defined in 0-HPS-025.1, section 4.12. Inside a High Rad Area, the minimum contact dose for a "hot spot" is 500 mR/hr.*

4. Identify the lowest dose location to stand should the operator be required to wait in the 4A RHR Pump Room.

ANSWER: Determines from the survey map that the best place to wait in the 4A RHR pump room is the far SW (upper left on map) corner of the room.

BASIS: *From the survey map, the lowest general area dose in the 4A RHR pump room is 4 mR/hr which is in the far SW corner of the room (top left on the survey map). To minimize dose while waiting, one should wait in the lowest dose area in the room.*

Verification of Completion

Job Performance Measure No. A.3 - Radiation Control

Applicant's Name: _____

Examiner's Name: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Question Documentation:

Question:

_____

_____

_____

_____

_____

Response:

_____

_____

_____

_____

_____

Result: Satisfactory/Unsatisfactory

Examiner's signature and date: _____ _____

JPM BRIEFING SHEET

INITIAL CONDITIONS:

1. You are a Unit Supervisor assigned as the Work Control Center Supervisor.
2. A Primary Operator is assigned the task of hanging an ECO on the 4P25B 4A RHR Pump Room Sump Pump. One of the tags to be hung involves closure of 4P25B discharge valve 4-12-010 which is located in a tight area between the sump pump and an adjacent wall.
3. You are holding a pre-job brief with the Primary Operator and are discussing RWP requirements and ALARA concerns.

INITIATING CUE:

For the purposes of ensuring ALARA principles are observed while this ECO is hung, answer the following using the references provided:

1. Based on the highest general area dose rate in the 4A RHR Pump Room, determine the maximum stay time allowed under this RWP.
2. Identify the area of highest surface contamination in the 4A RHR Pump Room.
3. Identify any "hot spots" in the 4A RHR Pump Room.
4. Identify the lowest dose location to stand should the operator be required to wait in the 4A RHR Pump Room.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU FEEL THAT YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

JPM ANSWER SHEET

Answer the following questions:

1. Based on the highest general area dose rate in the 4A RHR Pump Room, determine the maximum stay time allowed under this RWP.

2. Identify the area of highest surface contamination in the 4A RHR Pump Room.

3. Identify any "hot spots" in the 4A RHR Pump Room.

4. Identify the lowest dose location to stand should the operator be required to wait in the 4A RHR Pump Room.

Rev. 12-6-00

RADIATION WORK PERMIT

HP-1

RT DATE 01/01/07 TIME 0001 RWP NO. 07-0005

EXPIRATION DATE 01/01/08

D.A.D. SETTINGS: DOSE 25mrem RATE 350 mrem/hr EXTENDED TO / INITIALS:

JOB LOCATION AND WORK TO BE PERFORMED

RADIOLOGICAL CONTROLLED AREA

OPERATIONS DEPARTMENT

PLANT OPERATIONS

LOCATION	RADIATION LEVEL mrem/hr	CONTAMINATION LEVEL DPM/100cm²	AIRBORNE ACTIVITY PARTICULATE DAC	IODINE DAC	GAS mrem/hr
RCA	<1 -350	<1000-100,000	<.30	<.30	<1

** TO BE DETERMINED BY HP AS JOB PROGRESSES

RADIOLOGICAL REQUIREMENTS

				#	JOB HISTORY
1	MODESTY GARMENTS	8	PLASTIC SUIT & 17" BOOTIES		DOSE RATE METER
1	CLOTH GLOVES	9	PAPER COVERALLS	X	ALARMING DOSIMETER
1	RUBBER GLOVES (1) PAIR		RESPIRATOR W/CANISTER (TAPED)		EXTREMITY TLDS
1	CLOTH SHOE COVERS (1) PAIR		RESPIRATOR W/FORCED AIR (TAPED)		MULTI-BADGE TLDS
1	RUBBER SHOE COVERS		FORCED AIR HOOD (TAPED)		NEUTRON TLD
1	CLOTH COVERALLS	1	LAB COAT		HEPA VENTILATION
1	CLOTH HOOD	10	FACESHIELD	X	TLD AND DRD

SPECIAL INSTRUCTIONS

1) Shoe covers and gloves are the minimum PC's required for entry into a "CONTAMINATED AREA" (A Lab Coat is also required in tight :). The minimum PC's required for opening resin loading system and or venting/openning of any radioactive system is Lab Coat and Gloves. Full protective clothing is required for any work in a "HIGHLY CONTAMINATED AREA".

2) For radioactive systems a catch device SHALL be used when disconnecting fittings or opening systems. Notify RP immediately if spill or leakage occurs. RP to survey fittings when connections are broken on radioactive systems.

3) This RWP does not authorize entry into:
....."LOCKED HIGH RADIATION AREAS"
.....CONTAINMENT BUILDINGS
....."RESPIRATORY PROTECTION REQUIRED" areas

4) Notify RP prior to venting VCT's or Gas Decay Tanks.

5) Prior to entry into "HIGH RADIATION AREA", obtain a HIGH RAD AREA Briefing from RP.

6) Notify RP prior to entry into:
....."NOBLE GAS AIRBORNE AREAS"
....."HOT PARTICLE AREAS"
....."HIGHLY CONTAMINATED AREAS"
....."PRIOR TO ENTRY INTO OVERHEAD" areas.

7) Continuous RP coverage is required for opening any portion of the resin loading system.

8) A plastic suit or equivalant is required in wet contaminated areas.

9) RP Coverage required in "HOT PARTICLE AREAS". See 0-HPS-027.1 for specific Hot Particle Controls required.

10) Extra protective clothing required to work with Highly Contaminated Materials, change gloves frequently.

11) PEA'S or TELEMETRIC DOSIMETRY are REQ'D.

MAN-REM ESTIMATE: 0.900

RWP TERMINATED DUE TO:

COPY

H.P. SUPERVISION APPROVAL — DATE 12-8-06 — TIME 0813

TERMINATED BY — DATE — TIME

REV. 12/4/06

FLORIDA POWER & LIGHT - PTN

HP-44:30

LOCATION: UNIT 4 RESIDUAL HEAT REMOVAL EQUIPMENT

LOG# 07-0603

DATE: xx/xx/07

TIME: 0915

TECH.: x x xxxx

PID#: xxx

SIGNATURE:

RWP #: 2

Instrument	HPI #
Ro2	483
55XLB	1201
Rm-25	1022
N/A	

β MDA= 17.67 dpm

α MDA= 13.51 dpm

(A) AIRBORNE AREA
(B) RESPIRATORY PROTECTION
(C) CONTAMINATED AREA
(D) HIGHLY CONTAMINATED AREA
(E) EXCLUSION AREA
(F) HOT PARTICLE AREA
(H) HIGH RADIATION AREA
(K) KEEP OUT
(L) LOCKED HIGH RAD AREA
(M) RADIOACTIVE MATERIAL
(N) NOTIFY HP PRIOR TO ENTRY
(R) RADIATION AREA
(S) SURVEY METER REQUIRED
(T) H.P. COVERAGE REQUIRED
( ) N/A
( ) N/A

REFER TO LOCAL AREA POSTINGS FOR ADDITIONAL INFORMATION

DOSE RATES IN MREM/HR UNLESS OTHERWISE NOTED

= GENERAL AREA DOSE RATE
* = CONTACT DOSE RATE
○ = SMEAR LOCATION
△ = NEUTRON DOSE RATE
□ = BETA DOSE RATE
= CONTAMINATED BOUNDARY
= RAD BOUNDARY

Remarks: Monthly

SMEARS dpm/100cm² (COUNT AT LEAST ONE SMEAR ≥ 50,000 DPM FOR ALPHA)

(continued below left)

1 20	6 34	11 34	16 117	21 34	26 283
2 27	7 78	12 56	17 16	22 42	27 60
3 42	8 110	13 27	18 31,167	23 117	28 31
4 45	9 56	14 157	19 99	24 31	29 27
5 49	10 67	15 70	20 38	25 8056	30 27

SMEAR NO.: N/A

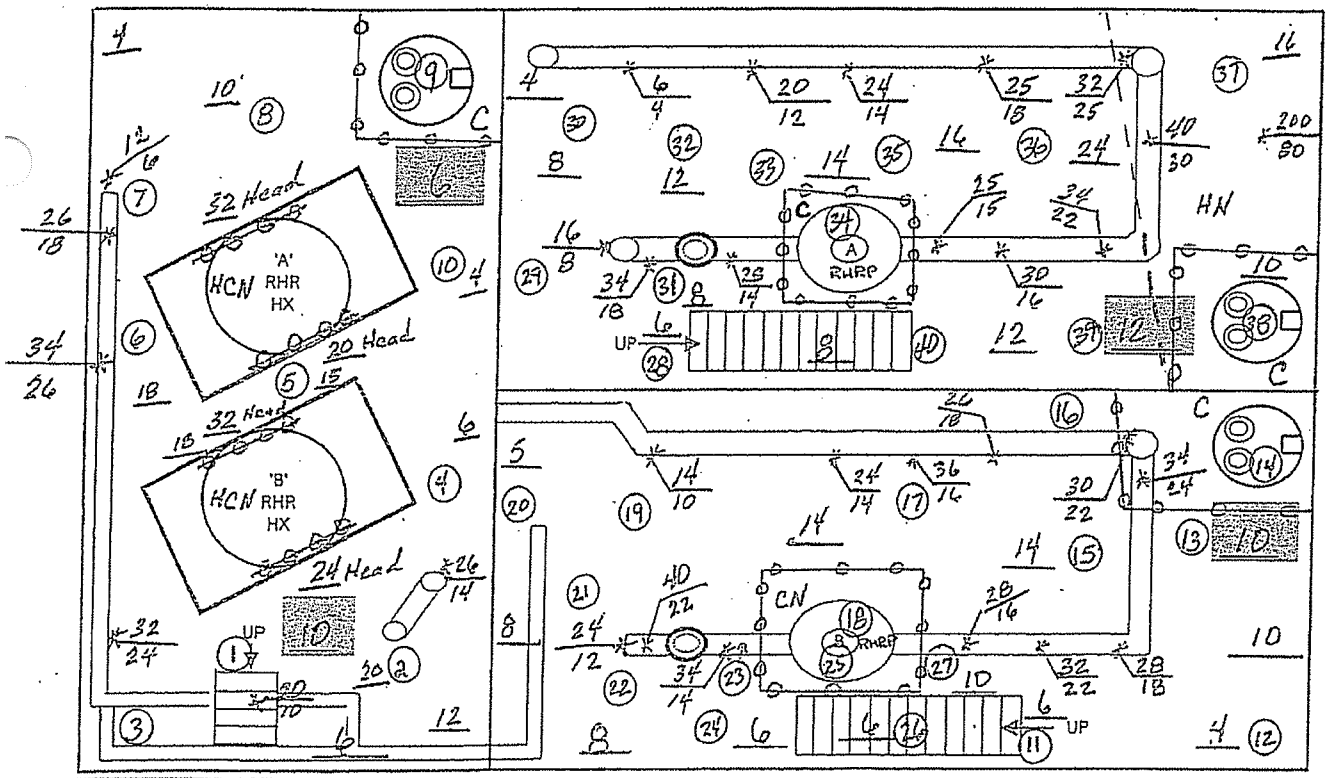
BETA/GAMMA: N/A

ALPHA: N/A

REVIEWED BY:

PRINT: x x x x SIGN: DATE: xx/xx/07

= SURVEY POINTS



Smears	dpm/100cm²			Continuation	
31	74	40	56		
32	142				
33	63				
34	1582				
35	81				
36	45				
37	81				
38	308				
39	63				

CONTAMINATED AREA
STOP
HIGH RADIATION
AREA
CAUTION
CAUTION

(R0)

Facility:	Turkey Point	Task No:	
Task Title:	Make Emergency Notifications as Communicator	Job Performance Measure No:	A.4- Emergency Plan (RO)
K/A Reference:	G2.4.43 (2.8/3.5)		
Applicant:		NRC Examiner:	
Facility Evaluator:		Date:	
Method of testing:	Simulator (Modified)		
Simulated Performance		Actual Performance	Yes
Classroom		Simulator	Yes
Plant			

Read to the applicant:

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:

1. You are a Reactor Operator assigned as the Communicator.
2. An Unusual Event was declared at 0700 today on Unit 4 due to sudden onset of 5 gpm RCS unidentified leakage. The time is now 0730.
3. State & County notifications were performed at 0715. The NRC Senior Resident Inspector notified at 0720. No other notifications outside FPL have been made yet.
4. Unit 3 is at 100% power in mode 1. Unit 4 is at 75% in mode 1 with a plant shutdown in progress due to the 5 gpm RCS leak.
5. Once Unit 4 is in mode 3, the RCS will be cooled down to mode 5 where the plant will remain until the leak is repaired. The restart date for Unit 4 will be determined once the leak is located and a repair plan established.
6. All systems have functioned normally following discovery of the RCS leak.
7. 4A HHSI pump is out of service due to motor ground.
8. Reactor coolant activity is 3.18E-02 μCi/ml. No release is in progress.

Task Standard:

1. Correctly complete the NRC Reactor Plant Event Notification Worksheet (NRC Form 361)

Required Materials:

1. Blank NRC Reactor Plant Event Notification Worksheet (NRC Form 361)
2. 0-EPIP-20101, Duties of Emergency Coordinator
3. Emergency Response Directory

General References:

1. 3-OSP-041.1, "Reactor Coolant System Leak Rate Calculation"
2. 0-EPIP-20112, "Communications Network"

Initiating Cue:

The Shift Manager / Emergency Coordinator directs you as Communicator to complete the NRC Event Notification Worksheet provided for NRC Operations Center notification of this Unusual Event.

Time Critical Task: No

Validation Time: 20 minutes

INSTRUCTIONS TO APPLICANT

READ TO APPLICANT:
WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, 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.

HAND JPM BRIEFING SHEET TO APPLICANT AT THIS TIME!

INITIAL CONDITIONS:

1. You are a Reactor Operator assigned as the Communicator.
2. An Unusual Event was declared at 0700 today on Unit 4 due to sudden onset of 5 gpm RCS unidentified leakage. The time is now 0730.
3. State & County notifications were performed at 0715. The NRC Senior Resident Inspector notified at 0720. No other notifications outside FPL have been made yet.
4. Unit 3 is at 100% power in mode 1. Unit 4 is at 75% in mode 1 with a plant shutdown in progress due to the 5 gpm RCS leak.
5. Once Unit 4 is in mode 3, the RCS will be cooled down to mode 5 where the plant will remain until the leak is repaired. The restart date for Unit 4 will be determined once the leak is located and a repair plan established.
6. All systems have functioned normally following discovery of the RCS leak.
7. 4A HHSI pump is out of service due to motor ground.
8. Reactor coolant activity is 3.18E-02 μCi/ml. No release is in progress.

INITIATING CUE:

The Shift Manager / Emergency Coordinator directs you as Communicator to complete the NRC Event Notification Worksheet provided for NRC Operations Center notification of this Unusual Event.

NOTE 1: Provide a copy of a blank NRC Reactor Plant Event Notification Worksheet (NRC Form 361) along with JPM Briefing Sheet.

TERMINATION CUE:

When you feel that you have satisfactorily completed the assigned task, hand your JPM briefing sheet back to me.

Do you have any questions?

You may begin.

Denote critical steps with a check mark (✓)

Start Time _____

STEP 1 :	Obtain blank NRC Reactor Plant Event Notification Worksheet (NRC Form 361)	____ SAT ____ UNSAT
STANDARDS:	Obtains blank NRC Reactor Plant Event Notification Worksheet (NRC Form 361)	
NOTE:	*Examiner provides blank NRC Reactor Plant Event Notification Worksheet (NRC Form 361) to applicant along with JPM Briefing Sheet*	

STEP 2 :	Complete NRC Reactor Plant Event Notification Worksheet (NRC Form 361) (0-EPIP-20101, step 5.4.1.5.d)	____ SAT ____ UNSAT
STANDARDS:	Completes the following items on the NRC Reactor Plant Event Notification Worksheet (NRC Form 361): Notification time = leaves blank until NRC notification made ✓ Facility or Organization = Turkey Point ✓ Unit = 4 Name of Caller = candidate enters own name ✓ Call Back # = 305.246.6492 or other valid outside phone line into CR ✓ Event Time & Zone = 0700 EDT ✓ Event Date = enters today's date Power/Mode Before = 100% / Mode 1 Power/Mode After = 75% / Mode 1 or 0% / mode 5 (either acceptable) ✓ Event Classification = X placed in UNUSUAL EVENT box. Description = enters information consistent with Initial Conditions: ✓ a. Unit 4 RCS unidentified leakage of 5 gpm ✓ b. Unit 4 plant shutdown in progress due to the 5 gpm RCS leak. ✓ c. Unit 4 RCS will be cooled down to mode 5 for leak repair. Notifications = YES checked for NRC Resident, State & Local (Other Gov Agencies & Media/Press Release may be checked No or Will Be) Anything Unusual or Not Understood = NO box checked Did All Systems Function as Required = YES box checked Mode of Operation Until Corrected = 5 Estimated Restart Date = TBD Additional Info on Back = YES box checked ✓ Location of the Leak = Reactor Coolant System ✓ Leak Rate / Units = 5 / gpm T.S. Limits = 1 gpm unidentified leakage Sudden or Long Term Development = sudden ✓ Leak Start Date / Time = today's date / 0700 Coolant Activity and Units = Primary box checked; 3.18μCi/ml ✓ List of Safety Related Equipment Not Operational = 4A HHSI Pump	
NOTE:	***11 of the 13 critical steps identified above must be satisafctorily completed to pass this JPM.***	

Termination Cue:	Applicant completes NRC Reactor Plant Event Notification Worksheet (NRC Form 361) and returns JPM Briefing Sheet to Examiner.	**STOP**

Stop Time _____

Verification of Completion

Job Performance Measure No. A.4 – Emergency Plan (RO)

Applicant's Name: _____

Examiner's Name: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Question Documentation:

Question:

_____

_____

_____

_____

_____

Response:

_____

_____

_____

_____

_____

Result: Satisfactory/Unsatisfactory

Examiner's signature and date: _____ _____

JPM BRIEFING SHEET

INITIAL CONDITIONS:

1. You are a Reactor Operator assigned as the Communicator.
2. An Unusual Event was declared at 0700 today on Unit 4 due to sudden onset of 5 gpm RCS unidentified leakage. The time is now 0730.
3. State & County notifications were performed at 0715. The NRC Senior Resident Inspector notified at 0720. No other notifications outside FPL have been made yet.
4. Unit 3 is at 100% power in mode 1. Unit 4 is at 75% in mode 1 with a plant shutdown in progress due to the 5 gpm RCS leak.
5. Once Unit 4 is in mode 3, the RCS will be cooled down to mode 5 where the plant will remain until the leak is repaired. The restart date for Unit 4 will be determined once the leak is located and a repair plan established.
6. All systems have functioned normally following discovery of the RCS leak.
7. 4A HHSI pump is out of service due to motor ground.
8. Reactor coolant activity is 3.18E-02 μCi/ml. No release is in progress.

INITIATING CUE:

The Shift Manager / Emergency Coordinator directs you as Communicator to complete the NRC Event Notification Worksheet provided for NRC Operations Center notification of this Unusual Event.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU FEEL THAT YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

NRC FORM 361
(12-2000)

US NUCLEAR REGULATORY COMMISSION
OPERATIONS CENTER

REACTOR PLANT EVENT NOTIFICATION WORKSHEET

EN#

NRC OPERATION TELEPHONE NUMBER: PRIMARY - 301-816-5100 OR 800-532-3469*, BACKUPS - [1st] 301-951-0550 or 800-449-3694*, [2nd] 301-415-0550 AND [3rd] 301-415-0553 *Licensees who maintain their own ETS are provided these telephone numbers.

NOTIFICATION TIME	FACILITY OR ORGANIZATION	UNIT	NAME OF CALLER	CALL BACK #

EVENT TIME & ZONE	EVENT DATE	POWER/MODE BEFORE	POWER/MODE AFTER

EVENT CLASSIFICATIONS			1-Hr. Non-Emergency 10 CFR 50.72(b)(1)						
	GENERAL EMERGENCY	GEN/AAEC		TS Deviation		ADEV		(v)(A)	Safe S/D Capability	AINA
	SITE AREA EMERGENCY	SIT/AAEC		4-Hr. Non-Emergency 10 CFR 50.72(b)(2)				(v)(B)	RHR Capability	AINB
	ALERT	ALE/AAEC		(i)	TS Required S/D	ASHU		(v)(C)	Control of Rad Release	AINC
	UNUSUAL EVENT	UNU/AAEC		(iv)(A)	ECCS Discharge to RCS	ACCS		(v)(D)	Accident Mitigation	AIND
	50.72 NON-EMERGENCY	(see next columns)		(iv)(B)	RPS Actuation (scram)	ARPS		(xii)	Off-site Medical	AMED
	PHYSICAL SECURITY (73.71)	DDDD		(xi)	Off-site Notification	APRE		(xiii)	Loss Comm/Asmt/Resp	ACOM
	MATERIAL/EXPOSURE	B???		8-Hr. Non-Emergency 10 CFR 50.72(b)(3)				60-Day Optional 10 CFR 50.73(a)(1)		
	FITNESS FOR DUTY	HFIT		(ii)(A)	Degraded Condition	ADEG		Invalid Specified System Actuation		AINV
	OTHER UNSPECIFIED REQMT.	(see last column)		(ii)(B)	Unanalyzed Condition	AUNA		Other Unspecified Requirement (Identity)		
	INFORMATION ONLY	NNF		(iv)(A)	Specified System Actuation	AESF				NONR

DESCRIPTION

Include: Systems affected, actuations and their initiating signals, causes, effect of event on plant, actions or planned, etc. *(Continue on back)*

NOTIFICATIONS	YES	NO	WILL BE
NRC RESIDENT	☐	☐	☐
STATE(s)	☐	☐	☐
LOCAL	☐	☐	☐
OTHER GOV AGENCIES	☐	☐	☐
MEDIA/PRESS RELEASE	☐	☐	☐

ANYTHING UNUSUAL OR NOT UNDERSTOOD? ☐ YES (Explain above) ☐ NO

DID ALL SYSTEMS FUNCTION AS REQUIRED? ☐ YES ☐ NO (Explain above)

MODE OF OPERATION UNTIL CORRECTED::

ESTIMATED RESTART DATE::

ADDITIONAL INFO ON BACK ☐ YES ☐ NO

NRC FORM 361 (12-200)

EVENT NOTIFICATION WORKSHEET

ADDITIONAL INFORMATION

RADIOLOGICAL RELEASES: CHECK OR FILL IN APPLICABLE ITEMS ***(specific details/explanations should be covered in event description)***

	LIQUID RELEASE		GASEOUS RELEASE		UNPLANNED RELEASE		PLANNED RELEASE		ONGOING		TERMINATED
	MONITORED		UNMONITORED		OFF-SITE RELEASE		T.S. EXCEEDED		RM ALARMS		AREAS EVACUATED
	PERSONNEL EXPOSED OR CONTAMINATED				OFF-SITE PROTECTIVE ACTIONS RECOMMENDED				*State release path in description		

	Release Rate (Ci/sec)	% T.S. LIMIT	HOO GUIDE	Total Activity (Ci)	% T.S. LIMIT	HOO GUIDE
Noble Gas			0.1 Ci/sec			1000 Ci
Iodine			10 uCi/sec			0.01 Ci
Particulate			1 uCi/sec			1 mCi
Liquid *(excluding tritium and dissolved noble gears)*			10 uCi/min			0.1Ci
Liquid (tritium)			0.2 Ci/min			5 Ci
Total Activity						

	PLANT STACK	CONDENSER/AIR EJECTOR	MAIN STEAM LINE	SG BLOWDOWN	OTHER
RAD MONITOR READINGS:					
ALARM SETPOINTS:					
% T.S. LIMIT *(If applicable)*					

RCS OR SG TUBE LEAKS: CHECK OR FILL IN APPLICABLE ITEMS: *(specific details/explanations should be covered in event description)*

LOCATION OF THE LEAK *(e.g., SG #, valve, pipe, etc)*

LEAK RATE:	UNITS: gpm/gpd	T.S. LIMITS:	SUDDEN OR LONG TERM DEVELOPMENT:
LEAK START DATE:	TIME:	COOLANT ACTIVITY AND UNITS:	☐ PRIMARY ☐ SECONDARY

LIST OF SAFETY RELATED EQUIPMENT NOT OPERATIONAL:

EVENT DESCRIPTION *(Continued from front)*

ANSWER KEY A.4 - RO

NRC FORM 361
(12-2000)

US NUCLEAR REGULATORY COMMISSION
OPERATIONS CENTER

REACTOR PLANT EVENT NOTIFICATION WORKSHEET

EN#

NRC OPERATION TELEPHONE NUMBER: PRIMARY - 301-816-5100 OR 800-532-3469*, BACKUPS - [1st] 301-951-0550 or 800-449-3694*, [2nd] 301-415-0550 AND [3rd] 301-415-0553 *Licensees who maintain their own ETS are provided these telephone numbers.

NOTIFICATION TIME	FACILITY OR ORGANIZATION	UNIT	NAME OF CALLER	CALL BACK #
enter notification time	Turkey Point	4	name of candidate	305.246.6492 or other valid Control Room phone number.

EVENT TIME & ZONE	EVENT DATE	POWER/MODE BEFORE	POWER/MODE AFTER
0700 EDT	today's date	100% / Mode 1	currently 75% / Mode 1

	EVENT CLASSIFICATIONS			1-Hr. Non-Emergency 10 CFR 50.72(b)(1)				(v)(A)	Safe S/D Capability	AINA
	GENERAL EMERGENCY	GEN/AAEC		TS Deviation		ADEV		(v)(B)	RHR Capability	AINB
	SITE AREA EMERGENCY	SIT/AAEC		4-Hr. Non-Emergency 10 CFR 50.72(b)(2)				(v)(C)	Control of Rad Release	AINC
	ALERT	ALE/AAEC		(i)	TS Required S/D	ASHU		(v)(D)	Accident Mitigation	AIND
X	UNUSUAL EVENT	UNU/AAEC		(iv)(A)	ECCS Discharge to RCS	ACCS		(xii)	Off-site Medical	AMED
	50.72 NON-EMERGENCY	(see next columns)		(iv)(B)	RPS Actuation (scram)	ARPS		(xiii)	Loss Comm/Asmt/Resp	ACOM
	PHYSICAL SECURITY (73.71)	DDDD		(xi)	Off-site Notification	APRE		60-Day Optional 10 CFR 50.73(a)(1)		
	MATERIAL/EXPOSURE	B???		8-Hr. Non-Emergency 10 CFR 50.72(b)(3)				Invalid Specified System Actuation		AINV
	FITNESS FOR DUTY	HFIT		(ii)(A)	Degraded Condition	ADEG		Other Unspecified Requirement (Identity)		
	OTHER UNSPECIFIED REQMT.	(see last column)		(ii)(B)	Unanalyzed Condition	AUNA				NONR
	INFORMATION ONLY	NNF		(iv)(A)	Specified System Actuation	AESF				NONR

DESCRIPTION

Include: Systems affected, actuations and their initiating signals, causes, effect of event on plant, actions or planned, etc. *(Continue on back)*

Sustained RCS leakage of 15 gpm on Unit 4. Downpower in progress to shutdown Unit 4. Power currently 75%. After plant taken to mode 3 expect to cooldown and depressurize reactor coolant system in order to locate and repair leak. No release in progress.

NOTIFICATIONS	YES	NO	WILL BE
NRC RESIDENT	☒	☐	☐
STATE(s)	☒	☐	☐
LOCAL	☒	☐	☐
OTHER GOV AGENCIES	☐	☒	☐
MEDIA/PRESS RELEASE	☐	☐	☒

ANYTHING UNUSUAL OR NOT UNDERSTOOD? ☐ YES (Explain above) ☒ NO

DID ALL SYSTEMS FUNCTION AS REQUIRED? ☒ YES ☐ NO (Explain above)

MODE OF OPERATION UNTIL CORRECTED:: 5

ESTIMATED RESTART DATE:: TBD

ADDITIONAL INFO ON BACK ☒ YES ☐ NO

NRC FORM 361 (12-200)

F-443/1:2 – Rev. 0 (1/10/03)

Approved:

- EMERGENCY COORDINATOR

— ANSWER KEY —

EVENT NOTIFICATION WORKSHEET

ADDITIONAL INFORMATION

RADIOLOGICAL RELEASES: CHECK OR FILL IN APPLICABLE ITEMS ***(specific details/explanations should be covered in event description)***

	LIQUID RELEASE		GASEOUS RELEASE		UNPLANNED RELEASE		PLANNED RELEASE		ONGOING		TERMINATED
	MONITORED		UNMONITORED		OFF-SITE RELEASE		T.S. EXCEEDED		RM ALARMS		AREAS EVACUATED
	PERSONNEL EXPOSED OR CONTAMINATED				OFF-SITE PROTECTIVE ACTIONS RECOMMENDED				*State release path in description		

	Release Rate (Ci/sec)	% T.S. LIMIT	HOO GUIDE	Total Activity (Ci)	% T.S. LIMIT	HOO GUIDE
Noble Gas			0.1 Ci/sec			1000 Ci
Iodine			10 uCi/sec			0.01 Ci
Particulate			1 uCi/sec			1 mCi
Liquid *(excluding tritium and dissolved noble gears)*			10 uCi/min			0.1Ci
Liquid (tritium)			0.2 Ci/min			5 Ci
Total Activity						

	PLANT STACK	CONDENSER/AIR EJECTOR	MAIN STEAM LINE	SG BLOWDOWN	OTHER
RAD MONITOR READINGS:					
ALARM SETPOINTS:					
% T.S. LIMIT *(If applicable)*					

RCS OR SG TUBE LEAKS: CHECK OR FILL IN APPLICABLE ITEMS: *(specific details/explanations should be covered in event description)*

LOCATION OF THE LEAK *(e.g., SG #, valve, pipe, etc)*
Unit 4 Reactor Coolant System

LEAK RATE:	UNITS: gpm/gpd	T.S. LIMITS:	SUDDEN OR LONG TERM DEVELOPMENT:
15		1gpm unidentified leakage	sudden

LEAK START DATE:	TIME:	COOLANT ACTIVITY AND UNITS:	☒ PRIMARY	☐ SECONDARY
today's date	1 hr ago	3.18 E-02 µCi/ml		

LIST OF SAFETY RELATED EQUIPMENT NOT OPERATIONAL:
4A High Head Safety Injection Pump

EVENT DESCRIPTION *(Continued from front)*

GROJ

Facility:	Turkey Point	Task No:	
Task Title:	Review NRCOC Notification Form	Job Performance Measure No:	A.4 - Emergency Plan (SRO)
K/A Reference:	G2.4.43 (2.8/3.5)		
Applicant:		NRC Examiner:	
Facility Evaluator:		Date:	

Method of testing: Classroom (New)

Simulated Performance Yes Actual Performance

Classroom Yes Simulator Plant

Read to the applicant:

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:

1. You are the Shift Manager acting as the Emergency Coordinator.
2. A 25 gpm tube leak in 4B steam generator was identified, the Emergency Plan was entered and an Unusual Event declared at 0710. State/County notifications were performed at 0725 and again at 0820 with NRC notification at 0745. The time is now 0830.
3. Unit 4 was initially at 100% power in mode 1 and is now shutdown in mode 3. 4-ONOP-071.2 was used to take Unit 4 off-line and is currently in use.
4. When the turbine was tripped as a part of the plant shutdown at 0805, the 4B steam generator tube leak rate increased to 80 gpm.
5. 4A HHSI pump is out of service due to motor ground. All other equipment is operable.
6. A proposed NRC Reactor Plant Event Notification Worksheet (NRC Form 361) has been filled out and is now awaiting your review and approval as Emergency Coordinator.

Task Standard:

1. Review and identify the four errors in the NRC Reactor Plant Event Notification Worksheet (NRC Form 361) provided for review and approval.

Required Materials:

1. Completed NRC Reactor Plant Event Notification Worksheet (NRC Form 361). One for initial notification at 0745 and a new proposed worksheet.
2. 0-EPIP-20101, Duties of Emergency Coordinator

General References:

1. 4-ONOP-071.2, Steam Generator Tube Leakage

Initiating Cue:

Review the proposed NRC Event Notification Worksheet provided and either approve it for transmission to the NRCOC or identify any errors and return it to the Communicator for correction.

Time Critical Task: No

Validation Time: 10 minutes

INSTRUCTIONS TO APPLICANT

READ TO APPLICANT:
WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, 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.

HAND JPM BRIEFING SHEET TO APPLICANT AT THIS TIME!

INITIAL CONDITIONS:

1. You are the Shift Manager acting as the Emergency Coordinator.
2. A 25 gpm tube leak in 4B steam generator was identified, the Emergency Plan was entered and an Unusual Event declared at 0710. State/County notifications were performed at 0725 and again at 0820 with NRC notification at 0745. The time is now 0830.
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5. 4A HHSI pump is out of service due to motor ground. All other equipment is operable.
6. A proposed NRC Reactor Plant Event Notification Worksheet (NRC Form 361) has been filled out and is now awaiting your review and approval as Emergency Coordinator.

INITIATING CUE:

Review the proposed NRC Event Notification Worksheet provided and either approve it for transmission to the NRCOC or identify any errors and return it to the Communicator for correction.

NOTE: Provide a copy of the completed 0745 NRC Reactor Plant Event Notification Worksheet (NRC Form 361) and the new proposed Worksheet along with JPM Briefing Sheet.

TERMINATION CUE:

When you feel that you have satisfactorily completed the assigned task, hand your JPM briefing sheet back to me.

Do you have any questions?

You may begin.

Denote critical steps with a check mark (✓)

Start Time _____

STEP 1 :	Obtain & review NRC Reactor Plant Event Notification Worksheet (NRC Form 361)	___ SAT ___ UNSAT
STANDARDS:	Obtains & reviews NRC Reactor Plant Event Notification Worksheet (NRC Form 361)	
NOTES:	*Examiner provides 0745 NRC Reactor Plant Event Notification Worksheet (NRC Form 361) as well as proposed Worksheet to applicant along with JPM Briefing Sheet.*	

STEP 2 : ✓	Identify four errors in the NRC Reactor Plant Event Notification Worksheet (NRC Form 361) provided.	___ SAT ___ UNSAT
STANDARDS:	Identifies four errors in the NRC Reactor Plant Event Notification Worksheet (NRC Form 361) provided as follows: 1. "Alert" Event Classification is incorrect; should be "Unusual Event" per 0-EPIP-20101 Enclosure 1 Category 2. 2. Event time should be 0710 rather than 0805 since the correct emergency classification is Unusual Event which was declared at 0710. 3. 4A steam generator incorrectly identified as the location of the leak 4. 4A High Head Safety Injection Pump not listed as "Safety Related Equipment not Operational".	
NOTES:	*1. If event incorrectly classified per Category 1, then Alert would be declared. Per Category 2, Alert criteria would only be met if this tube leak occurred with a LOOP or if the leak was greater than charging pump capacity.* *2. If candidate makes corrections to items other than those described above, this is acceptable as long as the change does not make the Worksheet incorrect.*	

Termination Cue:	Applicant completes reviewing NRC Reactor Plant Event Notification Worksheet (NRC Form 361), identifies the four errors and returns the Worksheet and JPM Briefing Sheet to Examiner.	**STOP**

Stop Time _____

Verification of Completion

Job Performance Measure No. A.4 – Emergency Plan (SRO)

Applicant's Name: _____

Examiner's Name: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Question Documentation:

Question:

_____

_____

_____

_____

_____

Response:

_____

_____

_____

_____

_____

Result: Satisfactory/Unsatisfactory

Examiner's signature and date: _____ _____

JPM BRIEFING SHEET

INITIAL CONDITIONS:

1. You are the Shift Manager acting as the Emergency Coordinator.
2. A 25 gpm tube leak in 4B steam generator was identified, the Emergency Plan was entered and an Unusual Event declared at 0710. State/County notifications were performed at 0725 and again at 0820 with NRC notification at 0745. The time is now 0830.
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4. When the turbine was tripped as a part of the plant shutdown at 0805, the 4B steam generator tube leak rate increased to 80 gpm.
5. 4A HHSI pump is out of service due to motor ground. All other equipment is operable.
6. A proposed NRC Reactor Plant Event Notification Worksheet (NRC Form 361) has been filled out and is now awaiting your review and approval as Emergency Coordinator.

INITIATING CUE:

Review the proposed NRC Event Notification Worksheet provided and either approve it for transmission to the NRCOC or identify any errors and return it to the Communicator for correction.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU FEEL THAT YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

NRC FORM 361
(12-2000)

US NUCLEAR REGULATORY COMMISSION
OPERATIONS CENTER

REACTOR PLANT EVENT NOTIFICATION WORKSHEET

EN#

NRC OPERATION TELEPHONE NUMBER: PRIMARY - 301-816-5100 OR 800-532-3469*, BACKUPS - [1st] 301-951-0550 or 800-449-3694*, [2nd] 301-415-0550 AND [3rd] 301-415-0553 *Licensees who maintain their own ETS are provided these telephone numbers.

NOTIFICATION TIME	FACILITY OR ORGANIZATION	UNIT	NAME OF CALLER	CALL BACK #
	Turkey Point	4	x x x x x	305.246.6492

EVENT TIME & ZONE	EVENT DATE	POWER/MODE BEFORE	POWER/MODE AFTER
0805 EDT	xx/xx/xx (today)	100% / Mode 1	0% / Mode 3

EVENT CLASSIFICATIONS			1-Hr. Non-Emergency 10 CFR 50.72(b)(1)				(v)(A) Safe S/D Capability AINA
	GENERAL EMERGENCY	GEN/AAEC		TS Deviation	ADEV		(v)(B) RHR Capability AINB
	SITE AREA EMERGENCY	SIT/AAEC	4-Hr. Non-Emergency 10 CFR 50.72(b)(2)				(v)(C) Control of Rad Release AINC
X	ALERT	ALE/AAEC		(i) TS Required S/D	ASHU		(v)(D) Accident Mitigation AIND
	UNUSUAL EVENT	UNU/AAEC		(iv)(A) ECCS Discharge to RCS	ACCS		(xii) Off-site Medical AMED
	50.72 NON-EMERGENCY	(see next columns)		(iv)(B) RPS Actuation (scram)	ARPS		(xiii) Loss Comm/Asmt/Resp ACOM
	PHYSICAL SECURITY (73.71)	DDDD		(xi) Off-site Notification	APRE		60-Day Optional 10 CFR 50.73(a)(1)
	MATERIAL/EXPOSURE	B???	8-Hr. Non-Emergency 10 CFR 50.72(b)(3)				Invalid Specified System Actuation AINV
	FITNESS FOR DUTY	HFIT		(ii)(A) Degraded Condition	ADEG		Other Unspecified Requirement (Identity)
	OTHER UNSPECIFIED REQMT.	(see last column)		(ii)(B) Unanalyzed Condition	AUNA		NONR
	INFORMATION ONLY	NNF		(iv)(A) Specified System Actuation	AESF		NONR

DESCRIPTION

Include: Systems affected, actuations and their initiating signals, causes, effect of event on plant, actions or planned, etc. *(Continue on back)*

4B steam generator tube leak increased from 25 gpm to 80 gpm when unit 4 taken off-line. Unit 4 currently in mode 3 preparing for Reactor Coolant System cooldown and depressurization to stop primary-secondary leak. No release greater than ODCM limits during this event. Unit 4 shut down and removed from service per Steam Generator Tube Leakage off-normal procedure. All equipment besides 4B steam generator functioning normally.

NOTIFICATIONS	YES	NO	WILL BE			
NRC RESIDENT	X			ANYTHING UNUSUAL OR NOT UNDERSTOOD?	☐ YES (Explain above)	☒ NO
STATE(s)	X			DID ALL SYSTEMS FUNCTION AS REQUIRED?	☒ YES	☐ NO (Explain above)
LOCAL	X					
OTHER GOV AGENCIES	X			MODE OF OPERATION UNTIL CORRECTED:: 5 (currently mode 3)	ESTIMATED RESTART DATE:: TBD	ADDITIONAL INFO ON BACK ☒ YES ☐ NO
MEDIA/PRESS RELEASE			X			

NRC FORM 361 (12-200)

F-443/1:2 – Rev. 0 (1/10/03)

Approved: _____

EVENT NOTIFICATION WORKSHEET

ADDITIONAL INFORMATION

RADIOLOGICAL RELEASES: CHECK OR FILL IN APPLICABLE ITEMS *(specific details/explanations should be covered in event description)*

☐ LIQUID RELEASE	☐ GASEOUS RELEASE	☐ UNPLANNED RELEASE	☐ PLANNED RELEASE	☐ ONGOING	☐ TERMINATED
☐ MONITORED	☐ UNMONITORED	☐ OFF-SITE RELEASE	☐ T.S. EXCEEDED	☐ RM ALARMS	☐ AREAS EVACUATED
☐ PERSONNEL EXPOSED OR CONTAMINATED		☐ OFF-SITE PROTECTIVE ACTIONS RECOMMENDED		*State release path in description	

	Release Rate (Ci/sec)	% T.S. LIMIT	HOO GUIDE	Total Activity (Ci)	% T.S. LIMIT	HOO GUIDE
Noble Gas			0.1 Ci/sec			1000 Ci
Iodine			10 uCi/sec			0.01 Ci
Particulate			1 uCi/sec			1 mCi
Liquid *(excluding tritium and dissolved noble gears)*			10 uCi/min			0.1Ci
Liquid (tritium)			0.2 Ci/min			5 Ci
Total Activity						

	PLANT STACK	CONDENSER/AIR EJECTOR	MAIN STEAM LINE	SG BLOWDOWN	OTHER
RAD MONITOR READINGS:					
ALARM SETPOINTS:					
% T.S. LIMIT *(If applicable)*					

RCS OR SG TUBE LEAKS: CHECK OR FILL IN APPLICABLE ITEMS: *(specific details/explanations should be covered in event description)*

LOCATION OF THE LEAK *(e.g., SG #, valve, pipe, etc)*
4A Steam Generator

LEAK RATE:	UNITS: gpm/gpd	T.S. LIMITS:	SUDDEN OR LONG TERM DEVELOPMENT:
80	gpm	1 gpm sig tube leakage	sudden

LEAK START DATE:	TIME:	COOLANT ACTIVITY AND UNITS:	☐ PRIMARY	☒ SECONDARY
xx/xx/xx (today)	0710			3.12E-3 μci/ml

LIST OF SAFETY RELATED EQUIPMENT NOT OPERATIONAL:
None

EVENT DESCRIPTION *(Continued from front)*

A.4 (SRO) Answer Key

NRC FORM 361
(12-2000)

US NUCLEAR REGULATORY COMMISSION
OPERATIONS CENTER

REACTOR PLANT EVENT NOTIFICATION WORKSHEET

EN#

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NOTIFICATION TIME	FACILITY OR ORGANIZATION	UNIT	NAME OF CALLER	CALL BACK #
	Turkey Point	4	x x x x x	305.246.6492

EVENT TIME & ZONE	EVENT DATE	POWER/MODE BEFORE	POWER/MODE AFTER
0805 EDT	xx/xx/xx (today)	100% / Mode 1	0% / Mode 3

	EVENT CLASSIFICATIONS			1-Hr. Non-Emergency 10 CFR 50.72(b)(1)					
	GENERAL EMERGENCY	GEN/AAEC		TS Deviation	ADEV		(v)(A)	Safe S/D Capability	AINA
	SITE AREA EMERGENCY	SIT/AAEC		4-Hr. Non-Emergency 10 CFR 50.72(b)(2)			(v)(B)	RHR Capability	AINB
X	ALERT	ALE/AAEC		(i)	TS Required S/D	ASHU	(v)(C)	Control of Rad Release	AINC
	UNUSUAL EVENT	UNU/AAEC		(iv)(A)	ECCS Discharge to RCS	ACCS	(v)(D)	Accident Mitigation	AIND
	50.72 NON-EMERGENCY	(see next columns)		(iv)(B)	RPS Actuation (scram)	ARPS	(xii)	Off-site Medical	AMED
	PHYSICAL SECURITY (73.71)	DDDD		(xi)	Off-site Notification	APRE	(xiii)	Loss Comm/Asmt/Resp	ACOM
	MATERIAL/EXPOSURE	B???		8-Hr. Non-Emergency 10 CFR 50.72(b)(3)				60-Day Optional 10 CFR 50.73(a)(1)	
	FITNESS FOR DUTY	HFIT		(ii)(A)	Degraded Condition	ADEG		Invalid Specified System Actuation	AINV
	OTHER UNSPECIFIED REQMT.	(see last column)		(ii)(B)	Unanalyzed Condition	AUNA		Other Unspecified Requirement (Identity)	
	INFORMATION ONLY	NNF		(iv)(A)	Specified System Actuation	AESF			NONR
									NONR

DESCRIPTION

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4B steam generator tube leak increased from 25 gpm to 80 gpm when unit 4 taken off-line. Unit 4 currently in mode 3 preparing for Reactor Coolant System cooldown and depressurization to stop primary-secondary leak. No release greater than ODCM limits during this event. Unit 4 shut down and removed from service per Steam Generator Tube Leakage off-normal procedure. All equipment besides 4B steam generator functioning normally.

Wrong classification. Should still be UE. Thus event time remains 0710.

NOTIFICATIONS	YES	NO	WILL BE
NRC RESIDENT	X		
STATE(s)	X		
LOCAL	X		
OTHER GOV AGENCIES	X		
MEDIA/PRESS RELEASE			X

ANYTHING UNUSUAL OR NOT UNDERSTOOD? ☐ YES (Explain above) ☒ NO

DID ALL SYSTEMS FUNCTION AS REQUIRED? ☒ YES ☐ NO (Explain above)

MODE OF OPERATION UNTIL CORRECTED:: 5 (currently mode 3)

ESTIMATED RESTART DATE:: TBD

ADDITIONAL INFO ON BACK ☒ YES ☐ NO

NRC FORM 361 (12-200)

F-443/1:2 – Rev. 0 (1/10/03)

Approved: _____

A.4 (SRO) Answer Key

EVENT NOTIFICATION WORKSHEET

ADDITIONAL INFORMATION

RADIOLOGICAL RELEASES: CHECK OR FILL IN APPLICABLE ITEMS *(specific details/explanations should be covered in event description)*

	LIQUID RELEASE		GASEOUS RELEASE		UNPLANNED RELEASE		PLANNED RELEASE		ONGOING		TERMINATED
	MONITORED		UNMONITORED		OFF-SITE RELEASE		T.S. EXCEEDED		RM ALARMS		AREAS EVACUATED
	PERSONNEL EXPOSED OR CONTAMINATED				OFF-SITE PROTECTIVE ACTIONS RECOMMENDED				*State release path in description		

	Release Rate (Ci/sec)	% T.S. LIMIT	HOO GUIDE	Total Activity (Ci)	% T.S. LIMIT	HOO GUIDE
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Liquid *(excluding tritium and dissolved noble gears)*			10 uCi/min			0.1Ci
Liquid (tritium)			0.2 Ci/min			5 Ci
Total Activity						

	PLANT STACK	CONDENSER/AIR EJECTOR	MAIN STEAM LINE	SG BLOWDOWN	OTHER
RAD MONITOR READINGS:					
ALARM SETPOINTS:					
% T.S. LIMIT *(If applicable)*					

RCS OR SG TUBE LEAKS: CHECK OR FILL IN APPLICABLE ITEMS: *(specific details/explanations should be covered in event description)*

LOCATION OF THE LEAK *(e.g., SG #, valve, pipe, etc)*
4A Steam Generator

LEAK RATE:	UNITS: gpm/gpd	T.S. LIMITS:	SUDDEN OR LONG TERM DEVELOPMENT:
80	gpm	1 gpm sg tube leakage	sudden

LEAK START DATE:	TIME:	COOLANT ACTIVITY AND UNITS:	☐ PRIMARY	☒ SECONDARY
xx/xx/xx (today)	0710			3.12E-3 µci/ml

LIST OF SAFETY RELATED EQUIPMENT NOT OPERATIONAL:
None

EVENT DESCRIPTION *(Continued from front)*

4A HHSI Pump is OOS

Wrong SG. Should be 4B