

PERFORM A REACTOR SHUTDOWN

K/A REFERENCE: 001 K4.01 (3.5/3.8)
(NUREG-1122) 001 K4.08 (3.2/3.4)
001.K4.02 (3.8/3.8)
001 K5.10 (3.9/4.1)
001 K5.65 (3.2/3.6)
001 A2.11 (4.4/4.7)
001.A4.03(4.0/3.7)
001.AA2.05 (4.4/4.6)

ALTERNATE PATH JPM YES NO

PERFORMANCE CHECKLIST:

SATISFACTORY - Properly performed and/or in sequence (if applicable)

UNSATISFACTORY - Improperly performed and/or out of sequence (if applicable)

Procedure adequately addresses task elements.
Enter identifier here: AOP-6C, Rev. 9, AOP-6B Rev 11,
OP-3B, Rev. 31, ARB 1C04 1A2-6

Other document adequately describes necessary task elements.
Enter identifier here: _____

Task elements described as attached.

DESIRED MODE OF EVALUATION:

APPLICABLE EVALUATION SETTING:

SIMULATE/WALKTHROUGH DISCUSSION PERFORM IN-PLANT CONTROL ROOM

VALIDATED TIME FOR COMPLETION: 15 MINUTES

PERFORM A REACTOR SHUTDOWN

EXAMINEE _____ EVALUATOR _____

START TIME _____ FINISH TIME _____

PERFORMANCE SAT UNSAT

JOB TITLE: AOT COT SRO STA

TOOLS/EQUIPMENT/REFERENCES:

AOP-6C, Rev. 9 "Uncontrolled Motion of RCCA(s)"/ AOP-6B, Rev 11, "Stuck Rod or Malfunctioning Position Indication"
 OP-3B, Rev. 31 "Reactor Shutdown"
 ARB 1C04 1A 2-6

TASK STANDARDS:

While performing a reactor shutdown, non-urgent failure is recognized and corrective action are taken in accordance with ARB. Uncontrolled rod motion is recognized and corrective actions are taken in accordance with AOP-6C.

SIMULATOR INFORMATION:

TIME	FAIL	COMP.	OPTION	VALUE	RAMP	DELAY	ACT	COND
--:--	IC-15	< 5%	Steady State Xenon increasing					
Manually enter ANN CRF3-1 (non-urgent failure alarm after 10 steps of rod motion or as cued by Instructor DSS) While examinee is taking ARB actions for failure the booth operator will need to load in the following items. Once items are loaded, clear the non-urgent failure alarm. This will be the examiner's cue to continue the JPM.								
	OVERRIDE (switches)	CRF9C	1				D	(Fails switch to manual)
	OVERRIDE (switches)	CRF10A	1 (OFF)				C	JCRFIN (Fails switch out)
	OVERRIDE	INDICATORS	PCS31	UNIT 1				
	OVERRIDE (switches)	CRF10B	2 (ON)				C	JCRFIN
Note: Power needs to be adjusted to <2% to meet OP-3B prerequisites. ENSURE ROD STEP COUNTERS ARE ON or adjust Bank D demand to 152 steps. CHECK to ensure audio multiplier in 10X position.								

NOTE: If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

PERFORM A REACTOR SHUTDOWN

READ AND PROVIDE TO THE EXAMINEE

THIS SECTION IS READ ONCE FOR THE ENTIRE PACKAGE OF JPMS. IT IS NOT REQUIRED TO REVIEW THIS SECTION FOR EVERY JPM BEING PERFORMED IN THE PACKAGE. THE INITIAL CONDITIONS AND INITIATING CUE(S)/TASKS TO BE PERFORMED SHOULD BE READ AND THEN PROVIDED TO THE EXAMINEE.

After I read you the initial conditions and initiating cue(s)/task to be performed for this JPM and provide you a copy of the same, you may review and begin. Once you have completed the task, indicate completion by handing back this form to the evaluator unless otherwise told.

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

For all two and three-way communications, make your report to me, the JPM evaluator. I will reply to your reports with the statement, "acknowledge." All actions in the plant are to be simulated and all actions in the simulator will be performed. Ensure you make it clear to me, the evaluator, of all actions you are taking so that credit may be given for completing each step of the task.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

Unit 1 has been shutdown at 1%/min in accordance with OP-3A, "Normal Power Operation to Low Power Operation" due to entry into Tech Spec 15.3.0.A. Currently power level is <2% and all the initial conditions of OP-3B, "Reactor Shutdown" have been completed. BOP Operator will maintain the secondary plant and respond to any secondary plant alarms which may occur.

INITIATING CUE(S) / TASK TO BE PERFORMED (SIMULATED):

You are directed by the DSS/DOS to perform a normal shutdown of Unit 1 reactor in accordance with OP-3B, "Reactor Shutdown," Step 5.2.

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PERFORMANCE INFORMATION

NOTE: CRITICAL STEPS ARE DENOTED WITH A "Y". FAILURE TO MEET THE STANDARDS FOR THIS ITEM CONSTITUTES FAILURE.

START TIME	_____	STEP/SEQUENCE/CRITICAL			SAT	_____
		1	1	N	UNSAT	_____

ELEMENT: Proceed to Attachment A to perform a normal reactor shutdown.

STANDARD: Recognize initiating cue requires a normal reactor shutdown and initial Step 5.2.1.

CUE: A normal reactor shutdown is to be performed.

COMMENTS:

		STEP/SEQUENCE/CRITICAL			SAT	_____
		2	2	N	UNSAT	_____

ELEMENT: Align the NIS recorder to (NR45) to the intermediate range channels:

- 1) N-35
- 2) N-36

STANDARD: NR-45 aligned to N-35 and N-36 and initialed in procedure.

CUE: NR-45 is aligned to N-35 and N-36

COMMENTS:

		STEP/SEQUENCE/CRITICAL			SAT	_____
		3	3	N	UNSAT	_____

ELEMENT: Place NR-45 in fast speed.

STANDARD: NR-45 drawer pulled out and D/P switch on left side of recorder moved to the fast speed position.

CUE: NR-45 recorder moving in fast speed (or as indicated on simulator)

COMMENTS:

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NOTE: *CRITICAL STEPS ARE DENOTED WITH A "Y". FAILURE TO MEET THE STANDARDS FOR THIS ITEM CONSTITUTES FAILURE.*

	STEP/SEQUENCE/CRITICAL	SAT
	4 4 N	UNSAT _____

ELEMENT: Completely read Step 5.0 and its substeps to determine actions required during reactor shutdown.

STANDARD: Trainee should read through Step 5.0 and its associated substeps.

CUE: Step 5.0 and associated substeps have been reviewed.

COMMENTS:

	STEP/SEQUENCE/CRITICAL	SAT
	5 5 N	UNSAT _____

ELEMENT: Commence insertion of the control banks using MANUAL rod control mode.

STANDARD: Shim switch placed in the Rods In position. Observes indications of proper reactor shutdown (SUR, Power Level, Rods moving inward direction on IRPI and demand)

CUE: Control bank rods are moving in (or as indicated on simulator)

COMMENTS:

	STEP/SEQUENCE/CRITICAL	SAT
	6 6 Y	UNSAT _____

ELEMENT: Recognize and respond to Rod Control Non-Urgent Failure Alarm (1C04 1A 2-6)

STANDARD: Recognize and acknowledge Non-Urgent Failure Alarm. Stop Rod Motion.

CUE:

COMMENTS:

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NOTE: *CRITICAL STEPS ARE DENOTED WITH A "Y". FAILURE TO MEET THE STANDARDS FOR THIS ITEM CONSTITUTES FAILURE.*

STEP/SEQUENCE/CRITICAL
7 7 Y

SAT _____
UNSAT _____

ELEMENT: References ARB 1C04 1A 2-6 and takes actions.

STANDARD: References ARB 1C04 1A 2-6. Notifies DSS/DOS. Stabilizes plant conditions. Does not withdraw rods until I & C has checked which power supply is lost. Notifies I & C of problem. Refers to AOP-6B Attachment A.

CUE: The DOS has directed I & C to investigate the cause of Non-Urgent Failure alarm. Do not move control rods and continue actions of the ARB.

NOTE: *The intent is to delay the examinee from continuing inward rod motion until the booth operator has sufficient time to load in a series of malfunctions needed to cause uncontrolled rod motion. Upon loading in all necessary malfunctions, the booth operator will clear the non-urgent failure alarm which is the examiners cue to move onto the next step.*

COMMENTS:

STEP/SEQUENCE/CRITICAL
8 8 N

SAT _____
UNSAT _____

ELEMENT: Recognize the non-urgent failure alarm has cleared.

STANDARD: As above.

CUE: I & C reports the +16.5 V power supply was lost and has been restored. The DOS directs you to continue with the Reactor Shutdown.

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PERFORMANCE INFORMATION

NOTE: *CRITICAL STEPS ARE DENOTED WITH A "Y". FAILURE TO MEET THE STANDARDS FOR THIS ITEM CONSTITUTES FAILURE.*

STEP/SEQUENCE/CRITICAL

9 9 Y

SAT _____
UNSAT _____

ELEMENT: Commence insertion of the control banks using MANUAL rod control mode.

STANDARD: Shim switch placed in the Rods In position.

CUE: Control bank rods are moving OUT (or as indicated on simulator)

COMMENTS:

STEP/SEQUENCE/CRITICAL

10 10 Y

SAT _____
UNSAT _____

ELEMENT: Recognize control bank rods are moving OUT versus IN.

STANDARD: Recognize improper rod motion and let go of shim switch.

CUE: Control rod banks continue to move outward (or as indicated on simulator)

NOTE: *Trainee may inform DOS and make recommendation to trip or tell the DOS that he is performing a manual reactor trip. If asked, DOS directs AOP-6C actions to be completed. In either case, it is critical that the operator recognizes rods are moving improperly in the wrong direction and ultimately a reactor trip is required to terminate the outward motion.*

COMMENTS:

STEP/SEQUENCE/CRITICAL

11 11 Y

SAT _____
UNSAT _____

ELEMENT: Manually trip the reactor.

STANDARD: Press both red reactor trip pushbuttons on 1C04, prior to any automatic reactor protection actuation.

CUE: All rod button lights are lit, IRPI's indicate rods are on the bottom, IR power level lowering, and SUR is negative.

NOTE: *Once reactor is verified tripped, inform trainee that the JPM is complete. NR Chart Recorder should be placed back in slow speed by booth operator to conserve paper.*

COMMENTS:

TERMINATION CUE: THIS COMPLETES THIS JPM.

COMPLETION TIME: _____