

Facility: <u>Harris Nuclear Plant</u>		Date of Examination: <u>02/13/2012</u>	
Exam Level: RO    SRO-I <b>SRO-U (bold)</b>		Operating Test No.: <u>05000400/2012301</u>	
Control Room Systems <sup>®</sup> (8 for RO); (7 for SRO-I); ( <b>2 or 3 for SRO-U, including 1 ESF - bold</b> )			
	System / JPM Title	Type Code*	Safety Function
a.	Pull control rods to POAH, two Safeties fail OPEN after Reactor is at POAH 001 A1.07	A, D, L, S	1
b.	Take Corrective Action For The Failure of a CSIP Mini-Flow Valve to Reposition (PATH-1) (JPM-CR-225) <i>K/A 006 A4.07</i>	A, D, L, S	2
c.	<b>Pressurizer Pressure Master Controller Failure (AOP-019) (JPM-CR-251)</b> <i>K/A APE 027 AA2.15</i>	<b>A, N, S</b>	<b>3</b>
d.	Initiate RCS Feed and Bleed (FRP-H.1) (JPM-CR-068) <i>K/A EPE E05 EA1.1</i>	A, D, L, S	4P
e.	Perform a Main Turbine Overspeed Trip Test (OPT-1075) (JPM-CR-251) <i>K/A 045 A3.08</i>	N, S	4S
f.	Containment Cooling to Max Cooling Mode (OP-169) (JPM CR-033) <b>RO Only</b> <i>K/A 022 A4.01</i>	D, S	5
g.	<b>LOSP While Paralleling a Emergency Diesel Generator from the Main Control Room for Testing (OP-155) (JPM-CR-203)</b> <i>K/A 056 A2.14</i>	<b>A, EN, P, S</b>	<b>6</b>
h.	<b>Fuel Handling Accident with Fuel Handling In Progress – Dropped Fuel Assembly (AOP-013) (JPM CR-035)</b> <i>K/A 034 A2.01</i>	<b>A, D, S, L</b>	<b>8</b>

In-Plant Systems <sup>®</sup> (3 for RO); (3 for SRO-I); (2 or 3 for SRO-U - BOLD)			
i.	<b>Shift AFW Pump Suction Locally (PATH 1, Attachment 12) (JPM-IP-004)</b> <i>K/A 061 K4.01</i>	E, D, R	4s
j.	<b>Reset Safety Injection Locally (PATH 1, Attachment 1) (JPM-IP-231)</b> <i>K/A 013 A2.06</i>	E, D	7
k.	Perform Local Actions For Placing a Failed Pressurizer Pressure channel In TEST (OWP-RP-02) (JPM-IP-247) <i>K/A APE 027 AA2.16</i>	EN, P	3
@	All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.		
* Type Codes		Criteria for RO / SRO-I / SRO-U	
(A)lternate path		4-6 / 4-6 / 2-3	(6, 6, 3)
(C)ontrol room			
(D)irect from bank		≤ 9 / ≤ 8 / ≤ 4	(7, 6, 3)
(E)mergency or abnormal in-plant		≥ 1 / ≥ 1 / ≥ 1	(2, 2, 2)
(EN)gineered safety feature		- / - / ≥ 1	(2, 2, 1)
(L)ow-Power / Shutdown		≥ 1 / ≥ 1 / ≥ 1	(4, 4, 1)
(N)ew or (M)odified from bank including 1(A)		≥ 2 / ≥ 2 / ≥ 1	(2, 2, 1)
(P)revious 2 exams		≤ 3 / ≤ 3 / ≤ 2	(2, 2, 1)
(R)CA		≥ 1 / ≥ 1 / ≥ 1	(1, 1, 1)
(S)imulator			

## 2012 NRC Control Room/In-Plant JPM Summary

**JPM a** – Pull control rods to POAH, two Safeties fail OPEN after reactor is at POAH (GP-004)  
(JPM CR-232)

*K/A 001 A1.07 – Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CRDS controls including: RCS average temperature indications (T-ave)  
(CFR: 41.5/45.5) RO 3.7 / SRO 4.0*

The Candidate will assume the watch with the unit operating at  $1 \times 10^{-8}$  amps awaiting critical rod height data to be recorded. Operator will continue the power ascension to the POAH. SUR is to be maintained less than 1 DPM IAW GP-004. When the POAH is reached operator will stabilize reactor power between 1 and 3%. Two Steam Generator Safeties will fail OPEN causing RCS Tavg to drop in an uncontrolled manner, with SUR,  $\Delta T$  and reactor power all increasing. The operator should recognize the changes in primary plant parameters and initiate a MANUAL reactor trip no later than two minutes after Tavg lowers to  $>10$  °F below Tref, GP-004, P&L #20 and/or 21. Candidate may also initiate trip due to the uncontrolled SUR to comply with GP-004 P&L #15 although tripping of the reactor is not a specified action. With the reactor tripped the operator will perform the immediate actions of PATH-1. Once the immediate actions of PATH-1 commence, evaluation on this JPM is complete.

**JPM b** – Take Corrective Action For The Failure of a CSIP Mini-Flow Valve to Reposition  
(PATH-1) (JPM-CR-225)

*K/A 006 A4.07 – Ability to manually operate and/or monitor in the control room: ECCS pumps and valves  
(CFR 41.7 / 45.5 to 45.8) RO 4.4 / SRO 4.4*

The candidate will assume the Operator at the Controls (OAC) responsibilities with the actions of PATH-1 completed through step 18. The CRS directs you to begin at Step 19 (reset SI) and continue performing PATH-1. The operator will have to locate the SI reset switches on the MCB and resets SI. The operator stops one CSIP to leaving only one pump running. The candidate evaluates RCS pressure, determines the trend is stable and continues to isolate High Head SI flow. The normal mini-flow valves are repositioned to the open position and the candidate identifies 1CS-214 will not open. This will require the operator to perform the alternate path for this JPM. The candidate completes the RNO actions for SI termination sequence for with CSIP normal mini-flow is not available. The charging flow control valve is opened a minimal amount prior to isolating the BIT to ensure the running CSIP is not deadheaded. The candidate has completed the JPM once the BIT is isolated and charging flow is adjusted maintaining greater than 60 gpm through the CSIP.

## 2012 NRC Control Room/In-Plant JPM Summary

### **JPM c – Pressurizer Pressure Master Controller Failure (AOP-019) (JPM-CR-251) NEW SRO Upgrade**

*K/A APE 027 AA2.15 – Ability to determine and interpret the following as they apply to the Pressurizer Pressure Control Malfunctions: Actions to be taken if PZR pressure instrument fails high (CFR: 43.5 / 45.13) RO 3.7 / SRO 4.0*

The candidate will assume the Operator at the Controls (OAC) responsibilities and be directed to maintain current plant conditions of 100% steady state power. Soon after assuming the watch the Pressurizer Pressure Master Controller PK-444B will begin to fail in Automatic to 100%. This will cause BOTH Pressurizer Spray valves to go from full closed to the full open position. The candidate should identify the failure and enter AOP-019. By performing the immediate actions the candidate should take manual control of the Pressurizer Master Controller and lower the output to close the Pressurizer Spray Valves. IF the candidate takes manual of control of BOTH Pressurizer Spray valves and NOT PK-444B then the master controller will continue to fail and Pressurizer PORV 444B will go full open. When the RCS pressure is < 2000 psig an auto shut signal will be sent to PORV 444B but by this time the pressure excursion will be so great that it will most likely cause an automatic Reactor Trip on OTΔT and Safety Injection on Low Pressurizer Pressure (at 1850 psig). The JPM is complete after the Pressurizer Master Controller is in manual OR both Pressurizer Spray Valves are manually shut AND PORV 444B is shut.

### **JPM d – Initiate RCS Feed and Bleed (FRP-H.1) (JPM-CR-063)**

*K/A EPE EA1.1 Ability to operate and / or monitor the following as they apply to the (Loss of Secondary Heat Sink): Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features. (CFR: 41.7 / 45.5 / 45.6) RO 4.1 SRO 4.0*

The candidate will assume the Operator at the Controls (OAC) responsibilities. Plant status is "B" MDAFW pump is under clearance, the Reactor tripped from 100% power due to a loss of off-site power followed by a Small Break LOCA. Emergency Bus 1A-SA locked out on an electrical fault and the TDAFW pump failed when it started. The crew is performing FRP-H.1, Response To Loss Of Secondary Heat Sink. The foldout criteria for initiation of RCS Feed and Bleed have just been met. Their task will be to initiate RCS feed and bleed. During the lineup to establish Feed and Bleed ONLY one Pressurizer PORV will open when procedurally TWO bleed paths are required. The candidate will have to perform the RNO actions of opening all RCS vent valves (located on panel AEP-1 which is not part of the MCB).

### **JPM e – Perform a Main Turbine Overspeed Trip Test (OPT-1075) (JPM-CR-251) NEW**

*K/A K/A 045 A3.08 – Ability to monitor automatic operation of the MT/G system, including: Determination from throttle and governor indicators of turbine trip: several indications, including CRDS trip alarm (CFR: 41/7 / 45.5) RO 3.3 / SRO 3.5*

The candidate will be directed by the CRS to perform the Main Turbine Trip Test in accordance with OPT-1075. The Main Turbine will be at 1700 rpm with communications established with the Turbine Building AO at the front standard. The candidate will have to transfer from throttle valves to governor valves then increase main Turbine speed to 1800 rpm. They will then inhibit the overspeed trip. Next they will gradually increase Turbine speed at 50 rpm until the mechanical overspeed trip occurs (between 1962 and 1998 rpm). The mechanical trip will be blocked and the turbine HOLD button will not function. The candidate will have to initiate a manual turbine trip when Turbine speed exceeds 1998 rpm.

## 2012 NRC Control Room/In-Plant JPM Summary

### **JPM f** – Containment Cooling to Max Cooling Mode (OP-169) (JPM-CR-033) **RO Only**

*K/A 022 A4.01 Ability to manually operate and/or monitor in the control room: CCS fans  
(CFR: 41.7 / 45.5 to 45.8) RO 3.6 SRO 3.6*

In preparation for an upcoming Containment entry, Containment Cooling is to be placed in Maximum Cooling Mode. This will require the applicant to realign fans and dampers in accordance with OP-169, Containment Cooling System. The applicant will have to report that a 1 hour Tech Spec condition exists due to Containment Pressure. The applicant will also have to verify the correct damper alignment using status light box indications.

### **JPM g** – LOSP While Paralleling a Emergency Diesel Generator from the Main Control Room for Testing (OP-155) (JPM-CR-203) Alternate Path and Engineered Safety Feature – SRO Upgrade (Previous NRC Exam – 2011) \*randomly selected from bank

*K/A 056 AA2.14 Ability to determine and interpret the following as they apply to the Loss of Offsite Power: Operational status of ED/Gs (A and B)  
(CFR: 43.5 / 45.13) RO 4.4 SRO 4.6*

The candidate will be informed that they are the 3<sup>rd</sup> Board Operator (extra operator) and will be directed by the CRS to parallel the 1B-SB Emergency Diesel Generator (EDG) to the grid from the Main Control Board IAW section 5.3 of OP-155. The candidate will exercise the EDG voltage and governor controls then parallel the EDG. After parallel operations have been achieved a Loss of Off Site Power will occur. The loss of power will require the candidate to manually open the EDG output breaker IAW OP-155 precaution and limitation #24.

### **JPM h** – Fuel Handling Accident with Fuel Handling In Progress – Dropped Fuel Assembly (AOP-013) (JPM CR-035) – SRO Upgrade

*K/A 034 A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the Fuel Handling System ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Dropped fuel element  
(CFR: 41.5 / 43.5 / 45.3 / 45.13) RO 3.6 SRO 4.4*

The plant is in Mode 6 and a core off-load is in progress. RCS temperature is 120°F and the refueling cavity water level is 23'6". The Containment area radiation monitors have gone into high alarm and are trending up. The Control Room has just received notice of a dropped fuel assembly. The applicant will be expected to identify that entry conditions to AOP-013 are met and obtain a copy of the AOP. The applicant will perform section 3.0 and transition to section 3.2 for a Fuel Handling Accident in Containment. The applicant will be expected to make a PA announcement and sound the Containment Evacuation alarm. They will be informed that another operator will check Containment closure established while they continue with the AOP. While continuing with the AOP they will encounter an AH that did not stop and a damper that failed to correctly position. They will have to place the components in the correct position and report the failures to the CRS.

## 2012 NRC Control Room/In-Plant JPM Summary

### **JPM i – Shift AFW Pump Suction Locally – (PATH 1, Attachment 12) (JPM-IP-004) SRO Upgrade**

*K/A 061 K4.01 Knowledge of AFW design feature(s) and/or interlock(s) which provide for the following:  
Water sources and priority of use  
(CFR: 41.7) RO 4.1 SRO 4.2*

NOTE: This JPM is inside the RCA, realignment of ONLY one train is required to successfully complete this JPM.

The candidate will be informed that the plant has tripped due to a LOCA and EOP-EPP-009, Post-LOCA Cooldown and Depressurization, is being performed. Both Motor Driven AFW pumps started and are being used to maintain SG levels. Makeup to the CST cannot be established and CST level is decreasing. MCC 1A35-SA and 1B35-SB are de-energized preventing operation of the components from the MCB. The CRS directs the operator to locally align ESW to A-SA (B-SB) MD AFW pumps IAW OP-137 Section 8.1. The candidate obtains the procedure, evaluates the initial conditions and determines that they are satisfied. The candidate locates the required valves, and verbally describes how to open or shut the valve. The JPM cues include information of the proper sequence of actions that must be taken in order repositions the valve and indications of valve positions.

### **JPM j – Reset Safety Injection Locally – (PATH 1, Attachment 1) (JPM-IP-231) SRO Upgrade**

*K/A 013 A2.06 Ability to (a) predict the impacts of the following malfunctions or operations on the ESFAS; and (b) based Ability on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations; Inadvertent ESFAS actuation  
(CFR: 41.5 / 43.5 / 45.3 / 45.13) RO 3.7 / SRO 4.0*

Following an inadvertent SI actuation and meeting SI termination criteria per Path-1 the crew is directed to reset SI. The candidate will be informed that SI Train 'B' did not reset from the MCR. The candidate will then be directed to locally reset Safeguards Train 'B' per Attachment 12 of PATH-1 Guide. This will require the candidate to go to the SSPS cabinet and simulate placing protection system breakers to the OFF position and then positioning the appropriate test switch to locally place the Protection System Train 'B' in test.

### **JPM k – Perform Local Actions For Placing a Failed Pressurizer pressure Channel In TEST (OWP-RP-02) (JPM-IP-247) (Previous NRC Exam – 2011) \*randomly selected from bank**

*K/A APE 027 AA2.16 Ability to determine and interpret the following as they apply to the Pressurizer Pressure Control Malfunctions: Actions to be taken if PZR pressure instrument fails low  
(CFR: 43.5 / 45.13) RO 3.6 / SRO 3.9*

The candidate will be informed that the plant was operating at 100% when Pressurizer Pressure Channel 455 failed low. They will be directed to perform the local actions per OWP-RP-02 for troubleshooting and tripping bistable for PT-455 to meet Technical Specifications. They will be required to perform actions at PIC 17 and PIC 1 to place the failed channel in TEST. They will then have to report to the Main Control Room and select an operable Pressurize Pressure recorder channel and verify the correct bistable status lights are lit for placing the channel in test.