

Facility: <u>Harris Nuclear Plant</u>		Date of Examination: <u>February 28, 2014</u>
Examination Level: RO <input type="checkbox"/> SRO <input checked="" type="checkbox"/>		Operating Test Number: <u>2014-301</u>

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	M, R	During a loss of shutdown cooling, determine the time that the RCS will reach core boiling and core boil-off conditions (JPM ADM-005-c-SRO) <i>K/A G2.1.20</i>
Conduct of Operations	N	Determine the amount of RCS inventory that will be drained from RCS during the performance of GP-008, Draining the RCS (JPM ADM-070-a-SRO) <i>K/A G2.2.25</i>
Equipment Control	P, R	Review (for approval) a completed surveillance procedure for PORV block valves. (JPM ADM-035-b SRO) <i>K/A G 2.2.12</i>
Radiation Control	D, R	Given a Declared Emergency, Determine the Dose Rate, Dose Limit, and the Number of People to Perform a Task. (JPM ADM-046-c) <i>K/A G2.3.4</i>
Emergency Procedures/Plan	N	Given a set of conditions, Classify an Event and make a Protective Action Recommendation. (JPM ADM-071-a-SRO) <i>KA G2.4.41</i>

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.

* Type Codes & Criteria:	(C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) (N)ew or (M)odified from bank (≥ 1) (P)revious 2 exams (≤ 1 ; randomly selected)	1 3 1
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2013 HNP NRC Retest Exam SRO Admin JPM Summary

2013 NRC Retest SRO A1-1 – During a loss of shutdown cooling, determine the time that the RCS will reach core boiling and core boil-off conditions. (SRO JPM ADM-005-c-SRO) Modified

*K/A G2.1.20 - Ability to interpret and execute procedure steps.
(CFR: 41.10 / 43.5 / 45.12) RO 4.6 SRO 4.6*

This bank JPM was modified by changing the dates and times of plant shutdown and values of the core thermocouples. These changes have made the calculated answer substantially different than the bank JPM answer.

The applicant will be provided with initial plant conditions. A plant shutdown for refueling is in progress with the Reactor Vessel head off when a loss of RHR has occurred. The crew is implementing AOP-020, Loss of RCS Inventory or Residual Heat Removal While Shutdown. The SRO applicants must first determine which of the four plant curves to use (H-X-8 through H-X-11) and then calculate the time the RCS will reach core boiling and core boil-off based on the figures.

2013 NRC Retest SRO A1-2 – Determine the amount of RCS inventory that will be drained from RCS during the performance of GP-008, Draining the RCS (JPM ADM-070-a-SRO) New

*K/A G2.1.25 - Ability to interpret reference materials, such as graphs, curves, tables, ect.
(CFR: 41.10 / 43.5 / 45.12) RO 3.9 SRO 4.2*

The applicant will be provided with initial plant conditions. A plant shutdown for refueling is in progress with the RCS drain down required from a starting point of mid-loop level and drain down to -70" below the flange. They will be required to calculate the amount of RCS volume in gallons that this drain down will accomplish using GP-008 Attachment 5.

2013 NRC Retest SRO A2 - Review (for approval) a completed surveillance procedure for PORV block valves. (JPM ADM-035-b SRO) Previous - 2011 NRC Exam randomly selected

*K/A G2.2.12 - Knowledge of surveillance procedures.
(CFR: 41.10 / 45.13) RO 3.7 SRO 4.1*

The applicant will be provided with a handout of a completed copy of a PORV Block Valve full stroke quarterly surveillance. The procedure contains three (3) errors that the candidate must identify.

2013 NRC Exam Retest SRO A3 - Given an emergency situation, determine the applicable dose limit and the number of people that will be required to perform the task, with no one exceeding the limit. (JPM ADM-046-c) Direct

*KA G2.3.4 - Knowledge of radiation exposure limits under normal or emergency conditions.
(CFR: 41.12 / 43.4 / 45.10) RO 3.2 SRO 3.7*

Given an accident and a personnel rescue or protection of valuable equipment scenario, determine stay time and the number of people required to complete the task without exceeding the facility limit.

2013 HNP NRC Retest Exam SRO Admin JPM Summary

2013 NRC Exam Retest SRO A4 - Given a set of conditions, Classify an Event and make a Protective Action Recommendation. (JPM ADM-071-a-SRO) New

*K/A G2.4.41 - Knowledge of the emergency action level thresholds and classifications
(CFR: 41.10 / 43.5 / 45.11) RO 2.9 SRO 4.6*

This is a two part JPM.

Part 1.

The applicant will be provided a set of plant conditions and will be required to evaluate the EAL Network to determine if a classification is required. Part 1 of this JPM will be required to be completed within 15 minutes.

Part 2.

If the applicant determines that the classification is a General Emergency the examiner will then provide the applicant with a wind speed and direction and direct the applicant to perform a Protective Action Recommendation (PAR). Part 2 of this JPM will also require the applicant to complete their evaluation within 15 minutes.

Control Room/In-Plant Systems Outline

Form ES-301-2

Facility: <u>Harris Nuclear Plant</u>		Date of Examination: <u>February 28, 2014</u>	
Exam Level: RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/>		Operating Test No.: <u>2014-301</u>	
Control Room Systems® (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)			
System / JPM Title		Type Code*	Safety Function
a.	Vent An Unisolable SI Accumulator during a Steam Generator Tube Rupture Event (JPM-CR-284-a) <i>K/A 006 A4.02</i>	A, EN, N, L, S	2
b.	Transfer to Hot Leg Recirculation (JPM-CR-066-d) <i>K/A 011 EK3.13</i>	A, EN, M, L, S	3
c.	Fuel Handling Accident with Fuel Handling In Progress – Dropped Fuel Assembly (JPM CR-035-b) <i>K/A 034 A2.01</i>	A, P, L, S	8
In-Plant Systems® (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)			
d.	Local Makeup to the VCT Using the Manual Emergency Boration Valve (JPM IP-088-a) <i>K/A 004 A2.14</i>	D, E, R	1
i.	Perform Local Actions for Placing an OT (JPM IP-209-b) <i>K/A 012 A4.04</i>	D, E	7
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	3
(C)ontrol room		$\leq 9 / \leq 8 / \leq 4$	2
(D)irect from bank		$\geq 1 / \geq 1 / \geq 1$	2
(E)mergency or abnormal in-plant		- / - / ≥ 1	2
(EN)gineered safety feature		$\geq 1 / \geq 1 / \geq 1$	3
(L)ow-Power / Shutdown		$\geq 2 / \geq 2 / \geq 1$	2
(N)ew or (M)odified from bank including 1(A)		$\leq 3 / \leq 3 / \leq 2$	1
(P)revious 2 exams		$\geq 1 / \geq 1 / \geq 1$	1
(R)CA			
(S)imulator			

2013 HNP NRC Retest Exam SRO Simulator and In-Plant JPM Summary

JPM a – Vent An Unisolable SI Accumulator during a Steam Generator Tube Rupture Event (JPM-CR-284-a) New

*K/A 006 A4.02: Emergency Core Cooling System (ECCS) - Ability to manually operate and/or monitor in the control room: Valves
(CFR: 41.7 / 45.5 to 45.8) RO 4.0 SRO 3.8*

The candidate will be assigned the OATC position. The initial conditions are a Steam Generator tube rupture has occurred on the 'A' SG. The crew entered AOP-016, Excessive Primary Plant Leakage. During the implantation of AOP-016 RCS leakage exceeded VCT makeup capability and the crew manually tripped the Reactor and Safety Injected. The crew entered EOP-E-0. After identifying the 'A' Steam Generator as ruptured the crew transitioned to and are implementing EOP-E-3, Steam Generator Tube Rupture. The CRS will direct the candidate to continue with E-3 starting at step 90 to check if SI accumulators should be isolated. The candidate will check RCS pressure below 1000 psig (Yes) then contact an Aux Operator to locally unlock and close both breakers for each SI accumulator discharge valve. After the discharge valves are energized the candidate will shut each SI accumulator discharge valve (1SI-246, 1SI-247 and 1SI-248). The 'A' Accumulator discharge valve (1SI-246, Accum 1-A-SA Disc Vlv) will not shut and require the candidate to implement the RNO action to vent the unisolable Accumulator using OP-110, Safety Injection, section 8.3. The OP will require the candidate to shut 1SI-287, Accum N2 Supply Isol valve and open 1SI-295, Accumulator 'A' N2 Supply and Vent valve. They will then slowly adjust HC-936, 1SI-298 Accum Vent Press Cntl control potentiometer output signal to open 1SI-298 and vent the Accumulator to Containment. The goal is to vent the 'A' Accumulator to 0 psig. Verification of 'A' Accumulator pressure reduction will be available by observation of MCB pressure indications, ERFIS screen plots, OSI-PI screen plots and annunciators. After the examiner observes both a low pressure alarm for the 'A' Accumulator (ALB-01-7-1, ACCUMULATOR TANK A HIGH-LOW PRESS, setpoint = 602 psig) and approximately a 5 psig pressure reduction a cue for using "time compression" can be given stating that the 'A' accumulator pressure now reads 0 psig. The candidate will then secure the vent process. The JPM will end when the 'A' Accumulator line up is restored.

JPM b – Transfer to Hot Leg Recirculation (JPM-CR-066-d) Modified

*K/A 011 EK3.3 EPE: Loss of Emergency Coolant Recirculation- Knowledge of the reasons for the following responses as they apply to the (Loss of Emergency Coolant Recirculation): Manipulation of controls required to obtain desired operating results during abnormal, and emergency situations.
(CFR: 41.5 / 41.10, 45.6, 45.13) RO 3.8 SRO 3.8*

The candidate will be assigned the OATC position. The turnover will be that the plant has experienced a Large Break LOCA 6.5 hours ago. The ESF equipment is presently aligned per EOP ES-1.3, Transfer to Cold Leg Recirculation. Enough time has passed since the LOCA to now require implementation of EOP ES-1.4, Transfer to Hot Leg Recirculation. The candidate will be required to complete this lineup. Modification of the JPM includes a failure of one of the Hot Leg injection valves to open (1SI-107). The candidate will be required to implement RNO actions to reopen the previously shut alternate high head SI to cold leg valve 1SI-52 and restart the Train A CSIP. Additionally, the RNO action statement directs consulting the plant operations staff to evaluate the use of Attachment 1 to open valves under pressure locking conditions. The implementation of the attachment will be directed after the candidate completes the 'B' train equipment lineup. The JPM will end when the Hot Leg lineup is complete and both the 'A' and the 'B' CSIPs are in operation.

**2013 HNP NRC Retest Exam
SRO Simulator and In-Plant JPM Summary**

JPM c – Fuel Handling Accident with Fuel Handling In Progress – Dropped Fuel Assembly (JPM CR-035-b) – 2012 NRC Exam JPM randomly selected from bank

*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*

Initial conditions presented to the candidate will be that 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. At this point the candidate will assume the watch. The candidate 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 candidate will be expected to make a PA announcement and evacuate personnel from the Containment by sounding the Containment Evacuation alarm. While continuing with the AOP they will encounter an Air Handler that did not auto secure and a damper that failed to reposition. They will have to place the components in the correct alignment and report the failures to the CRS.

JPM d – Local Makeup to the VCT Using the Manual Emergency Boration Valve

(JPM IP-088-a) Direct - NOTE: This JPM will be performed in the RCA.

*004 A2.14 Ability to (a) predict the impacts of the following malfunctions or operations on the CVCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Emergency boration
(CFR: 41.5/ 43/5 / 45/3 / 45/5) RO 3.8 SRO 3.9*

The candidate will be informed that the Reactor Makeup Control System has malfunctioned requiring the candidate to locally makeup to the VCT in accordance with Attachment 2 of AOP-003, Malfunction of Reactor Makeup Control. Without a procedure the candidate will be directed by the Main Control Room to locate the manual Emergency Boration and Reactor Makeup Water valves and then simulate positioning these valves to the Control Rooms mark.

JPM e – Perform Local Actions for Placing an OTΔT Channel in Test (JPM IP-209-b) Direct

*K/A 012 A4.04 Ability to manually operate and/or monitor in the control room: Bistable, trips, reset and test switches
(CFR: 41.7 / 45.5 to 45.8) RO 3.3 SRO 3.3*

The candidate will be given initial conditions of the plant was operating at 100% power when Loop 1 Hot Leg temperature input to Tav_g and OTΔT failed low. They will also be told that all Master Test Switches are to be placed in test for troubleshooting and that the Control Room has placed Rod Control in MANUAL. The candidate will be directed to perform the local actions per OWP-RP-01 for troubleshooting and tripping bistables for Loop 1 Tav_g and OTΔT to meet Technical Specifications. They will be instructed to inform the Control Room when all switches have been positioned to allow the Control Room to complete the actions required in the Control Room.