ES-301 **Administrative Topics Outline** **Form ES-301-1**

Facility: RIVER BEND STATION Date of Examination: 12/8/2014

Examination Level: RO ☑ SRO ☐ Operating Test Number: _____

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R, D	(A1) Determine the amount of Decay Heat in the Core per OSP-0041 KA 2.1.20 (4.6) Ability to interpret and execute procedure steps
Conduct of Operations	R, D	(A2) Determine corrected Fuel Zone Level Indication KA 2.1.23 (4.3) Ability to perform specific system and integrated plant procedures during all modes of plant operation.
Equipment Control	R, N	(A3) Use plant drawings to determine effect(s) of fuse removal KA 2.2.15 (3.9) Ability to determine the expected plant configuration using design and configuration control documentation, such as drawings, line-ups, tag-outs, etc.
Radiation Control		
Emergency Procedures/Plan	R, M	(A4) Determine Containment Water Level During Containment Flooding KA 2.4.21 (4.0) Knowledge of the parameters and logic used to assess the status of safety functions, such as reactivity control, core cooling and heat removal, reactor coolant system integrity, containment conditions, radioactivity release control, etc.

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)

NRC

RO ADMIN JPMS

A1 - This task will have the applicant calculate core decay heat using the charts from Attachments 1 and 6 of OSP-0041.

A2 - This task will have the applicant plot RPV level using a set of correction curves and then determine is adequate core cooling is assured.

A3 - The applicant will use plant drawings to determine the effects of removing a fuse to support a maintenance activity. Three effects are asked for: (1) the fail position of an exhaust filter damper; (2) any other components that are affected and the associated effect; and (3) identification of any alarms or indications that would be seen in the Control Room.

A4 - This task will have the applicant use given data and a procedure to determine the water level in the containment. This data will be further used to determine correlated water level in the RPV. The task is being performed because of a plant emergency that required entry into the Severe Accident Procedures (SAPs).

JPM A4 was re-selected due to validation comments about the original JPM not being an RO task in our plant.

ES-301 **Administrative Topics Outline** **Form ES-301-1**

Facility: RIVER BEND STATION Date of Examination: 12/8/2014

Examination Level: RO ☐ SRO ☑ Operating Test Number: _____

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R, M	(A5) Determine stay time for a hot environment KA 2.1.26 (3.4) Knowledge of industrial safety procedures (such as rotating equipment, electrical, high temperature, high pressure, caustic, chlorine, oxygen, and hydrogen).
Conduct of Operations	R, M	(A6) Determine Actions for Reactor Water Chemistry KA 2.1.34 (3.5) Knowledge of primary and secondary plant chemistry limits.
Equipment Control	R, N	(A7) Determine Secondary Containment Operability KA 2.2.12 (4.1) Knowledge of surveillance procedures.
Radiation Control	R, D	(A8) Determine required actions upon Radioactive Effluent Monitor Failure KA 2.3.11 (4.3) Ability to control radiation releases.
Emergency Procedures/Plan	R, M	(A9) Determine PAR KA 2.4.44 (4.4) Knowledge of emergency plan protective action recommendations.

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)

NRC

SRO ADMIN JPMs

A5 - This task will have the applicant determine the type of work demand and the maximum stay time for an evolution involving two nuclear equipment operators. Use of EN-IS-108, Working in Hot Environments will be required

A6 - This task will require an SRO to review data and AOP-0058 to determine actions after a report from the Chemistry Department. In part, the SRO is determining if the Mode Switch can be taken to RUN.

A7 – This task will require the SRO to use Daily Logs and given data to determine corrected annulus pressure and secondary containment operability.

A8 - The applicant reviews given plant and environmental conditions, as well as the TRM to determine potential actions for allowing a radiological effluent discharge.

A9 - The applicant reviews given plant and environmental conditions to determine a Protective Action Recommendation. This is a TIME CRITICAL JPM.

ES-301 **Control Room/In-Plant Systems Outline** **Form ES-301-2**

Facility: RIVER BEND STATION	Date of Examination: 12/8/2014
Exam Level: RO ☑ SRO-I ☐ SRO-U ☐	Operating Test No.: _____

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. (S1) Pull Rods to Achieve Criticality – w/ trip of CRD pumps	S,A,E,L,N	1
b. (S2) Shutdown RCIC using SOP- w/ Drain Trap Level High	S,A,N	2
c. (S3) Perform Main Turbine BPV Cycle Test (STP-509-0101)	S,D	3
d. (S4) Reduce SDC to only RHR-A – w/ overload pre-trip alarm	S,A,L,N	4
e. (S5) Stop Cont High Volume Purge – w/Decay Heat Fan trip	S,A,D,E,EN	9
f. (S6) Place Suppression Pool Cooling System in Service (SOP-140)	S,D	5
g. (C1) Shed DC Loads for Station Blackout (AOP-50, Attach 3)	C,D,E,L	6
h. (C2) Bypass Control Rod in RACS (STP-500-0705)	C,D	7
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. (P1) Vent Scram Air Header (Encl 11)	R,D,E,EN	1
j. (P2) Supply Fire Protection Water for CB via SSW (SOP-37, sect 5.3)	E,N	8
k. (P3) Perform UO Actions of AOP-31 to Operate the Div 1 EDG	A,E,L,N	6

@ 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 5
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4 6
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1 6
(EN)gineered safety feature	- / - / ≥1 (control room system) 2
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1 4
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1 5
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected) 0
(R)CA	≥ 1 / ≥ 1 / ≥ 1 1
(S)imulator	

S1 – The applicant is directed to withdraw control rods to achieve criticality. Before criticality is reached however, at the evaluators' discretion, a CRD pump trip occurs. As an alternate path, the standby CRD pump is started but also trips. The operator will be required to place the mode switch in SHUTDOWN after receiving an accumulator fault associated with a withdrawn control rod and RPV pressure less than 600 psig.

S2 – *This is a replacement JPM for Starting the Condenser Air Removal Pumps*. A post-maintenance run of RCIC is ongoing. Direction will be given to secure RCIC using the SOP. An alarm alerts the applicant of an abnormal condition in the RCIC exhaust drain system. Because of plant conditions, and direction in the Alarm Response Procedure, the applicant will restart the RCIC Gland Seal Compressor.

S3 – *This is a replacement JPM for Performing a Pressure Set Adjustment. There were too few steps in the previous JPM*.
The plant is operating at power; this JPM is a surveillance to verify the full stroke operation of the Main Turbine Bypass Valves.

S4 - *This is a replacement JPM for placing the Turbine on the turning gear.*
The reactor is shutdown with two loops of shutdown cooling in operation. This task will have the applicant secure the B loop of SDC. As an alternate path, a low voltage condition will cause elevated motor amps on the A RHR Pump; the applicant will have to use the ARP to reduce load on the pump by reducing flow.

S5 - *This JPM was adjusted to allow the evolution at higher power so there would be less "low power" JPMs. (Containment purge instead of drywell purge.)*
The plant had experienced high containment radiation levels and high volume purge, using Standby Gas Treatment, was placed in service and rad levels reduced. This task will have the applicant secure the containment purge using SOP-0059. As an alternate Path, a failure of the decay heat removal fan occurs, and the applicant will be required to re-start the standby gas treatment system with a suction from outside air using SOP-0043.

S6 - *This JPM was adjusted to allow the evolution at higher power so there would be less "low power" JPMs.*
The plant is performing a startup per GOP-0001. This task has the applicant start the Suppression Pool Cooling and Cleanup System using SOP-0140, Suppression Pool Cleanup and Alternate Decay Heat Removal section 5.2.

C1 - This task will remove DC loads from the station batteries in order to reduce heat load in the control room. Without operator action, during a station blackout, Control Room temperatures can reach greater than 120˚F in less than 4 hours.

C2 - This task will have the applicant bypass a control rod to allow movement of the rod without position indication.

P1 - This task will have the applicant simulate venting the scram air header during an ATWS.

P2 - This task will have the applicant align the Standby Service Water System to the Fire Protection Water System Hose Racks. This would be performed provide water for firefighting via manual hose streams in the Control Building.

P3 - This task will have the applicant simulate performing a post-maintenance startup of the RPS Motor Generator Set B using SOP-0079, Reactor Protection System. An Alternate Path is taken when the MG fails to self-excite and the applicant must use guidance in the procedure to reset the over excitation trip to allow the motor generator to achieve proper voltage.

ES-301 **Control Room/In-Plant Systems Outline** **Form ES-301-2**

Facility: RIVER BEND STATION	Date of Examination: 12/8/2014
Exam Level: RO ☐ SRO-I ☑ SRO-U ☐	Operating Test No.: _____

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. (S1)		
b. (S2) Shutdown RCIC using SOP- w/ Drain Trap Level High	S,A,N	2
c. (S3) Perform Main Turbine BPV Cycle Test (STP-509-0101)	S,D	3
d. (S4) Reduce SDC to only RHR-A – w/ overload pre-trip alarm	S,A,L,N	4
e. (S5) Stop Cont High Volume Purge – w/Decay Heat Fan trip	S,A,D,E,EN	9
f. (S6) Place Suppression Pool Cooling System in Service (SOP-140)	S,D	5
g. (C1) Shed DC Loads for Station Blackout (AOP-50, Attach 3)	C,D,E,L	6
h. (C2) Bypass Control Rod in RACS (STP-500-0705)	C,D	7
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. (P1) Vent Scram Air Header (Encl 11)	R,D,E,EN	1
j. (P2) Supply Fire Protection Water for CB via SSW (SOP-37, sect 5.3)	E,N	8
k. (P3) Perform UO Actions of AOP-31 to Operate the Div 1 EDG	A,E,L,N	6

@ 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 4
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4 6
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1 5
(EN)gineered safety feature	- / - / ≥1 (control room system) 2
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1 3
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1 4
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected) 0
(R)CA	≥ 1 / ≥ 1 / ≥ 1 1
(S)imulator	

S2 – *This is a replacement JPM for Starting the Condenser Air Removal Pumps*.
A post-maintenance run of RCIC is ongoing. Direction will be given to secure RCIC using the SOP. An alarm alerts the applicant of an abnormal condition in the RCIC exhaust drain system. Because of plant conditions, and direction in the Alarm Response Procedure, the applicant will restart the RCIC Gland Seal Compressor.

S3 – *This is a replacement JPM for Performing a Pressure Set Adjustment. There were too few steps in the previous JPM*.
The plant is operating at power; this JPM is a surveillance to verify the full stroke operation of the Main Turbine Bypass Valves.

S4 - *This is a replacement JPM for placing the Turbine on the turning gear.*
The reactor is shutdown with two loops of shutdown cooling in operation. This task will have the applicant secure the B loop of SDC. As an alternate path, a low voltage condition will cause elevated motor amps on the A RHR Pump; the applicant will have to use the ARP to reduce load on the pump by reducing flow.

S5 - *This JPM was adjusted to allow the evolution at higher power so there would be less "low power" JPMs*. *(Containment purge instead of drywell purge.)*
The plant had experienced high containment radiation levels and high volume purge, using Standby Gas Treatment, was placed in service and rad levels reduced. This task will have the applicant secure the containment purge using SOP-0059. As an alternate Path, a failure of the decay heat removal fan occurs, and the applicant will be required to re-start the standby gas treatment system with a suction from outside air using SOP-0043.

S6 - *This JPM was adjusted to allow the evolution at higher power so there would be less "low power" JPMs.*
The plant is performing a startup per GOP-0001. This task has the applicant start the Suppression Pool Cooling and Cleanup System using SOP-0140, Suppression Pool Cleanup and Alternate Decay Heat Removal section 5.2.

C1 - This task will remove DC loads from the station batteries in order to reduce heat load in the control room. Without operator action, during a station blackout, Control Room temperatures can reach greater than 120˚F in less than 4 hours.

C2 - This task will have the applicant bypass a control rod to allow movement of the rod without position indication.

P1 - This task will have the applicant simulate venting the scram air header during an ATWS.

P2 - This task will have the applicant align the Standby Service Water System to the Fire Protection Water System Hose Racks. This would be performed provide water for firefighting via manual hose streams in the Control Building.

P3 - This task will have the applicant simulate performing a post-maintenance startup of the RPS Motor Generator Set B using SOP-0079, Reactor Protection System. An Alternate Path is taken when the MG fails to self-excite and the applicant must use guidance in the procedure to reset the over excitation trip to allow the motor generator to achieve proper voltage.

ES-301 **Control Room/In-Plant Systems Outline** **Form ES-301-2**

Facility: RIVER BEND STATION	Date of Examination: 12/8/2014
Exam Level: RO ☐ SRO-I ☐ SRO-U ☑	Operating Test No.: _____

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. (S1)		
b. (S2) Shutdown RCIC using SOP- w/ Drain Trap Level High	S,A,N	2
c. (S3)		
d. (S4)		
e. (S5) Stop Cont High Volume Purge – w/Decay Heat Fan trip	S,A,D,E,EN	9
f. (S6)		
g. (C1)		
h. (C2) Bypass Control Rod in RACS (STP-500-0705)	C,D	7
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. (P1) Vent Scram Air Header (Encl 11)	R,D,E,EN	1
j. (P2)		
k. (P3) Perform UO Actions of AOP-31 to Operate the Div 1 EDG	A,E,L,N	6

@ 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
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(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4 3
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1 3
(EN)gineered safety feature	- / - / ≥1 (control room system) 2
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1 2
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected) 0
(R)CA	≥ 1 / ≥ 1 / ≥ 1 1
(S)imulator	

NUCLEAR PLANT OPERATOR
ADMINISTRATIVE
JOB PERFORMANCE MEASURE

SRO ☐ **RO** ☒

ALTERNATE PATH ☐

TITLE: **Determine the Amount of Decay Heat in the Core**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**NA**	Actual Time (min):	**NA**
PERFORMANCE TIME:	Average Time (min):	15	Actual Time (min):	

JPM RESULTS*: (Circle one) * SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

X	Perform
	Simulate

EVALUATION LOCATION:

	Plant
	Simulator
	Control Room
X	Classroom

Prepared:	Dave Bergstrom	**Date:**	August 28, 2014
Reviewed:	Steve Carter (Operations Representative)	**Date:**	October 1, 2014
Approved:	Joey Clark (Facility Reviewer)	**Date:**	October 17, 2014

EXAMINER INFO SHEET

Task Standard: Applicant determined decay heat in the core in accordance with the answer key; the applicant further determined that the capacity of SPC/ADHR is INSUFFICIENT.

Synopsis: This task will have the applicant calculate core decay heat using Attachments 1 and 6 of OSP-0041.
The applicant will conclude that SPC/ADHR does not meet acceptability requirements.

NOTE: This JPM is Administrative and will be performed in a classroom.

1) **Read to the operator**:

"I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied. Inform me when you have completed the task."

2) Initial Conditions:

After operating 396 days at 100% power, the plant scrammed at 1500 hours on November 25, 2014. It is now 0900 hours on November 26, 2014. RHR B is operating in SDC and the designated Alternate Decay Heat Removal Method is SPC/ADHR. The following conditions exist:

Reactor coolant Temperature	164˚F
Service Water Temperature	83˚F
Service Water Flow	2500 gpm

RHR A is inoperable due to an electrical bus fault

All other plant equipment is operable and available.

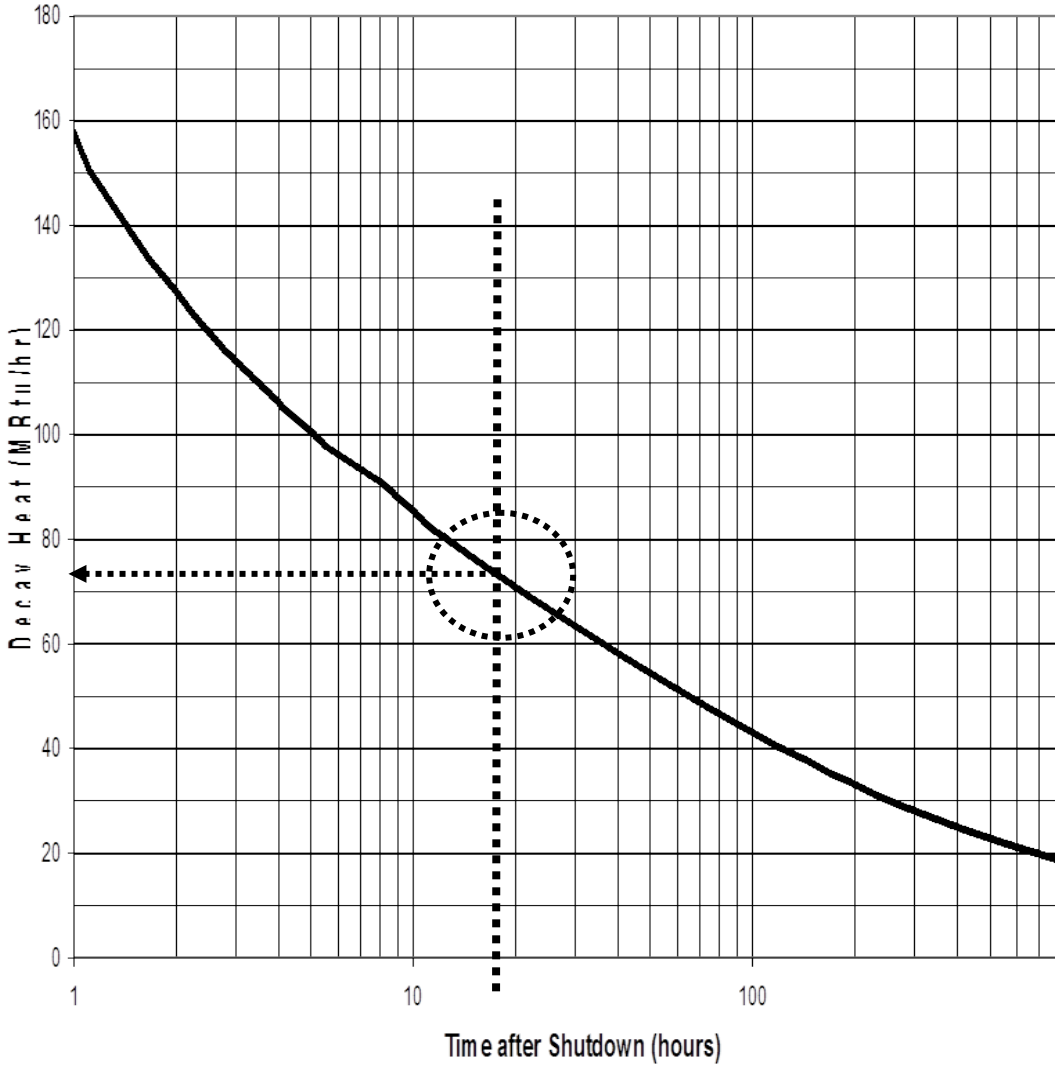
3) Initiating Cues:

The CRS has directed you to (1) determine the amount of decay heat in the core by completing OSP-0041, Alternate Decay Heat Removal Attachment 1, and (2) determine if SPC/ADHR will have sufficient capacity to remain in Mode 4, if RHR-B becomes inoperable.

4) Solicit and answer any questions the operator may have.

ANSWER KEY

RBS Decay Heat after Shutdown from Full Power



SYSTEM	HEAT REMOVAL CAPACITY (BTU/HR)	CONDITIONS / ASSUMPTIONS
SPC/ADHR	37.67×10^6 40.12×10^6 70.86×10^6	2500 gpm, 83°F Service Water & 2250 gpm, 120°F Rx Coolant 2250 gpm, 140°F Rx Coolant 2250 gpm, 200°F Rx Coolant

DATA SHEET

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Determine the amount of Decay Heat in the Core per OSP-0041	301001005003	G 2.1.20	4.6

REFERENCES:
OSP-0041, Alternate Decay Heat Removal, Rev 306

APPLICABLE OBJECTIVES

REQUIRED MATERIALS:
OSP-0041, Alternate Decay Heat Removal, Rev 306

SIMULATOR CONDITIONS &/or SETUP:

1. This is a classroom/Admin JPM – There is no simulator setup

2.

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: Applicant determined decay heat in the core in accordance with the answer key; the applicant further determined that the capacity of SPC/ADHR is INSUFFICIENT.

PERFORMANCE:

START TIME: _____

OSP-0041, Alternate Decay Heat Removal Attachment 1

1.	**Procedure Step:**	1. Time Since Reactor Shutdown Record current date and time ___ Record date and time of Reactor shutdown ___ Determine length of time since Reactor shutdown ___ Hours
	Standard	Applicant determined the reactor has been shutdown for 18 hours.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

2.	***Procedure Step:**	2. Reactor Core Decay Heat from Attachment 6 or Incore Fuels Group _____ 10^6 BTU/HR
	Standard	Applicant determined the core decay heat to be 75 x 10^6 Btu/hr. (±3)
	Cue	If asked: The Incore Fuels Group is unavailable due to Thanksgiving Holiday
	Notes	Applicant will use the graph from Attachment 6 to perform this step. There is a key on page 3 of this JPM.
	Results	SAT ☐ UNSAT ☐

3.	***Procedure Step:**	3. Compare Reactor Core Decay Heat value from Step 2 of this attachment to the systems heat removal capacities below and determine the alternate Shutdown Cooling Methods.
	Standard	Applicant concluded that the capacity of SPC/ADHR is 70.86 MBtu/Hr and is insufficient compared to the 75 MBtu/Hr of core decay heat. The applicant marked the answer sheet "INSUFFICIENT".
	Cue	
	Notes	Applicant will use the SPC/ADHR system and the 200˚F Rx Coolant temperature to make this determination. This table (shown on page 3 of this JPM) indicates that a decay heat of just 70.86 x 10^6 BTU/Hr will allow reactor coolant temperature to rise to 200˚F, therefore not allow you to stay in Mode 4. The current decay heat (determined from Attach 6) is too great for the SPC/ADHR system to remove and not undergo a mode change.
	Results	SAT ☐ UNSAT ☐

Terminating Cue: Applicant determined decay heat in the core in accordance with the answer key; the applicant further determined that the capacity of SPC/ADHR is INSUFFICIENT.

This completes this JPM.

STOP TIME: _____

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

Initial Conditions:

After operating 396 days at 100% power, the plant scrammed at 1500 hours on November 25, 2014. It is now 0900 hours on November 26, 2014. RHR B is operating in SDC and the designated Alternate Decay Heat Removal Method is SPC/ADHR. The following conditions exist:

Reactor coolant Temperature	164˚F
Service Water Temperature	83˚F
Service Water Flow	2500 gpm

RHR A is inoperable due to an electrical bus fault

All other plant equipment is operable and available.

Initiating Cues:

The CRS has directed you to (1) determine the amount of decay heat in the core by completing OSP-0041, Alternate Decay Heat Removal Attachment 1, and (2) determine if SPC/ADHR will have sufficient capacity to remain in Mode 4, if RHR-B becomes inoperable.

Applicant Answer Sheet:

Decay Heat at 0900 hours on Friday November 26 _____

SPC/ADHR capacity is SUFFICIENT / INSUFFICIENT (circle one) to remain in Mode 4.

NUCLEAR PLANT OPERATOR
ADMINISTRATIVE
JOB PERFORMANCE MEASURE

SRO ☐ **RO** ☒

ALTERNATE PATH ☐

TITLE: **Determine Corrected Fuel Zone Level Indication and Adequate Core Cooling**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**NA**	Actual Time (min):	**NA**
PERFORMANCE TIME:	Average Time (min):	9	Actual Time (min):	

JPM RESULTS*: (Circle one) * SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

X	Perform
	Simulate

EVALUATION LOCATION:

	Plant
	Simulator
	Control Room
X	Classroom

Prepared:	Dave Bergstrom	**Date:**	August 28, 2014
Reviewed:	Steve Carter	**Date:**	October 1, 2014
	(Operations Representative)		
Approved:	Joey Clark	**Date:**	October 17, 2014
	(Facility Reviewer)		

EXAMINER INFO SHEET

Task Standard: Applicant determined that RPV water level is below TAF and that adequate core cooling **is** assured.

Synopsis: This task will have the applicant plot RPV level using a correction curve.

NOTE: This JPM is Administrative and will be performed in a classroom.

1) **Read to the operator**:

"I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied. Inform me when you have completed the task."

2) Initiating Cues:

The CRS has directed you to use the Fuel Zone Correction Curve of SOP-0001, Attachment 1 to determine whether RPV level is above or below the top of active fuel and to determine whether or not adequate core cooling is assured.

3) Initial Conditions:

The plant has experienced a LOCA.

Fuel Zone Indication is reading -185 inches

RPV pressure is reading 300 psig

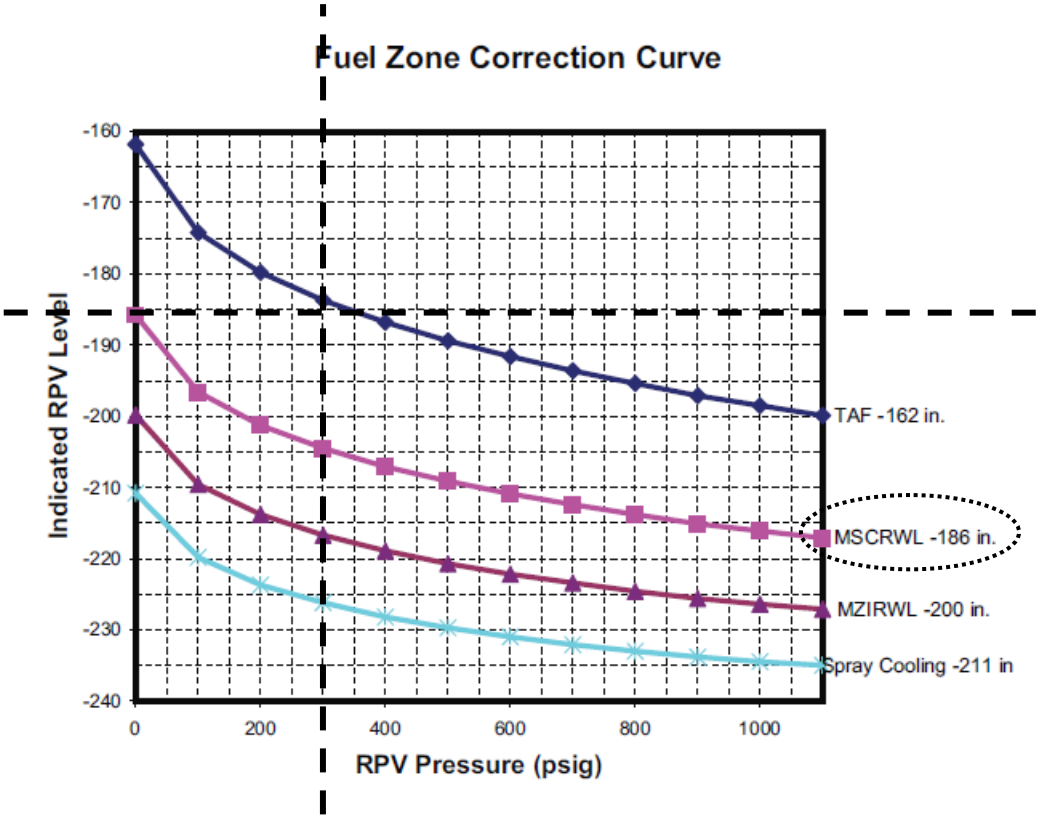
LPCS is injecting at 2500 gpm

4) Solicit and answer any questions the operator may have.

ANSWER KEY

RPV Water Level is ABOVE / BELOW the Top of Active Fuel *(circle one)*

Adequate Core Cooling IS / IS NOT assured. *(circle one)*



DATA SHEET

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Determine corrected fuel zone level indication and determine whether or not adequate core cooling exits	200009005005	G 2.1.25	3.9

REFERENCES:
SOP-0001, Nuclear Boiler Instrumentation, Rev 19
RLP-HLO-0511, Intro to EOPs and SAPs

APPLICABLE OBJECTIVES
RLP-STM-0051, Obj 5
RLP-HLO-0305, Obj 4
RLP-HLO-0511, Obj 4

REQUIRED MATERIALS:
Attachment 3 of SOP-0001, Nuclear Boiler Instrumentation

SIMULATOR CONDITIONS &/or SETUP:

1. This is a classroom/Admin JPM – There is no simulator setup

2.

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: Applicant determined that RPV water level is **below** TAF and that adequate core cooling **is** assured.

PERFORMANCE:

START TIME: _____

1.	***Procedure Step:**	1. Use Attachment 3, Fuel Zone Correction Curve, of SOP-0001, Nuclear Boiler Instrumentation to determine actual RPV level.
	Standard	Applicant used Attachment 3 of SOP-0001 (handout) and determined that RPV level is **below** TAF.
	Cue	
	Notes	As seen on the key (page 3 of this JPM), the intersection of -185" and 300 psig is just below the curve for TAF.
	Results	SAT ☐ UNSAT ☐

2.	***Procedure Step:**	2. Use Attachment 3, Fuel Zone Correction Curve, of SOP-0001, Nuclear Boiler Instrumentation to determine if adequate core cooling is assured
	Standard	Applicant used Attachment 3 of SOP-0001 (handout) and determined that Adequate Core Cooling **is** assured.
	Cue	
	Notes	As seen on the key (page 3 of this JPM), the intersection of -185" and 300 psig is above the Minimum Steam Cooling RPV Water Level (MSCRWL)
	Results	SAT ☐ UNSAT ☐

Terminating Cue: Applicant determined that RPV water level is **below** TAF and that adequate core cooling **is** assured.

This completes this JPM.

STOP TIME: _____

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

Initial Conditions:

The plant has experienced a LOCA.

Fuel Zone Indication is reading -185 inches

RPV pressure is reading 300 psig

LPCS is injecting at 2500 gpm

Initiating Cues:

The CRS has directed you to use the Fuel Zone Correction Curve of SOP-0001, Attachment 1 to determine whether RPV level is above or below the top of active fuel and to determine whether or not adequate core cooling is assured

Answer Sheet:

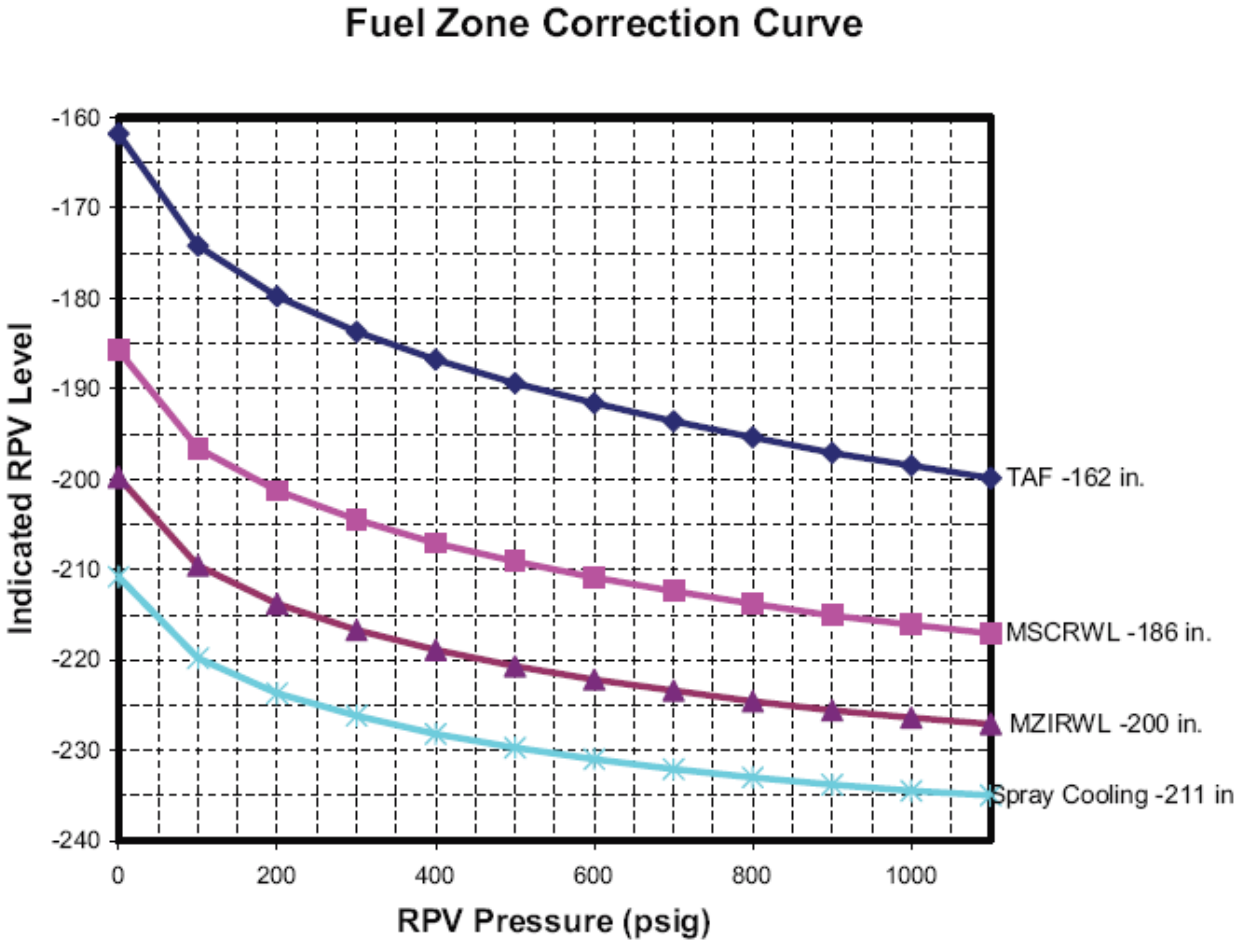
RPV Water Level is ABOVE / BELOW the Top of Active Fuel *(circle one)*

Adequate Core Cooling IS / IS NOT assured. *(circle one)*

CONTINUOUS USE

ATTACHMENT 3
PAGE 1 OF 1

FUEL ZONE CORRECTION CURVE



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NUCLEAR PLANT OPERATOR
ADMINISTRATIVE
JOB PERFORMANCE MEASURE

SRO ☐ **RO** ☒

ALTERNATE PATH ☐

TITLE: **Use Plant Drawings to Determine Effect of Fuse Removal**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**NA**	Actual Time (min):	**NA**
PERFORMANCE TIME:	Average Time (min):	25	Actual Time (min):	

JPM RESULTS*: (Circle one) * SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

	Perform
X	Simulate

EVALUATION LOCATION:

	Plant
	Simulator
	Control Room
X	Classroom

Prepared:	Dave Bergstrom	**Date:**	September 7, 2014
Reviewed:	Steve Carter	**Date:**	October 1, 2014
	(Operations Representative)		
Approved:	Joey Clark	**Date:**	October 17, 2014
	(Facility Reviewer)		

EXAMINER INFO SHEET

Task Standard: The applicant determined the effects of removing fuse F1 in Panel P852 in accordance with the attached key.

Synopsis: The applicant will use plant drawings to determine the effects of removing a fuse to support a maintenance activity.

NOTE: This JPM is Administrative and will be performed in a classroom.

1) **Read to the operator**:

"I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied. Inform me when you have completed the task."

2) Initiating Cues:

Given the appropriate drawings, the CRS has directed you to determine the following:

1. The fail position of HVF-AOD 20B, Fuel Building Exhaust Filter 2B Inlet Isolation Damper, when the fuse is removed.
2. Any other component(s) positions that are affected by the fuse removal and the associated affect.
3. Identify any control room alarms, status lights and / or component indication affected. (Alarm # is sufficient)

3) Initial Conditions:

Mechanical Maintenance has a Work Order to work on the Fuel Building Exhaust Filter 2B Inlet Isolation Damper, HVF-AOD 20B. The 2B Filtration Unit has been tagged out and Electricians are ready to remove the 5 amp Fuse F1 in Panel P852 to de-energize the damper for work to begin.

4) Solicit and answer any questions the operator may have.

ANSWER KEY

Initiating Cues:

Given the appropriate drawings, the CRS has directed you to determine the following:

1. The fail position of HVF-AOD 20B, Fuel Building Exhaust Filter 2B Inlet Isolation Damper, when the fuse is removed.
2. Any other component(s) positions that are affected by the fuse removal and the associated affect.
3. Identify any control room alarms, status lights and / or component indication affected. (Alarm # is sufficient)

Write answers below:

(Critical Task)

1. HVF-AOD 20B fails OPEN

(Critical Task is for all of the three listed below)

2. HVF-AOD 31B fails OPEN
   HVF-AOD 3B fails CLOSED
   HVF-AOD33B fails CLOSED

(Critical Task is for any one of the three listed below)

3. ALARM number 0464 on H13-P863
   Status Light for FB Vent Dampers
   Loss of Lights for all 4 valves above

DATA SHEET

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Use Plant Drawings to Determine Effect of Fuse Removal	300246003001 299003001001	G 2.2.15	3.9

REFERENCES:
ESK-07HVF03
ESK-07HVF04
ESK-10ANN23
ESK-07SCC22

APPLICABLE OBJECTIVES
RLP-HLO-542-1, Obj 5, 6, 7

REQUIRED MATERIALS:
ESK-07HVF03
ESK-07HVF04
ESK-10ANN23
ESK-07SCC22

SIMULATOR CONDITIONS & SETUP:

1. This is a classroom/Admin JPM – There is no simulator setup but pictures/diagrams must be developed for the applicants use.

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: The applicant determined the effects of removing fuse F1 in Panel P852 in accordance with the attached key.

PERFORMANCE:

START TIME: _____

1.	***Procedure Step:**	Determine fail position of HVF-AOD 20B, Fuel Building Exhaust Filter 2B Inlet Isolation Damper.
	Standard	Applicant determined the fail position in accordance with the attached key.
	Cue	
	Notes	Provide applicant with attachments as necessary
	Results	SAT ☐ UNSAT ☐

2.	***Procedure Step:**	Determine other component positions affected by removal of fuse F1.
	Standard	Applicant determined the position(s) of other components affected in accordance with the attached key.
	Cue	
	Notes	Provide applicant with attachments as necessary
	Results	SAT ☐ UNSAT ☐

3.	***Procedure Step:**	Determine Main Control Room indications and alarms caused by removal of fuse F1.
	Standard	Applicant determined the MCR indications and alarms in accordance with the attached key.
	Cue	
	Notes	Provide applicant with attachments as necessary
	Results	SAT ☐ UNSAT ☐

Terminating Cue: The applicant determined the effects of removing fuse F1 in Panel P852 in accordance with the attached key.

This completes this JPM.

STOP TIME: _____

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

Initial Conditions:

Mechanical Maintenance has a Work Order to work on the Fuel Building Exhaust Filter 2B Inlet Isolation Damper, HVF-AOD 20B. The 2B Filtration Unit has been tagged out and Electricians are ready to remove the 5 amp Fuse F1 in Panel P852 to de-energize the damper for work to begin.

Initiating Cues:

Given the appropriate drawings, the CRS has directed you to determine the following:

1. The fail position of HVF-AOD 20B, Fuel Building Exhaust Filter 2B Inlet Isolation Damper, when the fuse is removed.
2. Any other component(s) positions that are affected by the fuse removal and the associated affect.
3. Identify any control room alarms, status lights and / or component indication affected. (Alarm # is sufficient)

Write answers below:

1.

2.

3.

NUCLEAR PLANT OPERATOR
ADMINISTRATIVE
JOB PERFORMANCE MEASURE

SRO ☐ **RO** ☒

ALTERNATE PATH ☐

TITLE: **Determine Containment Water Level During Containment Flooding**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**NA**	Actual Time (min):	**NA**
PERFORMANCE TIME:	Average Time (min):	10	Actual Time (min):	

JPM RESULTS*: (Circle one) * SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

	Perform
X	Simulate

EVALUATION LOCATION:

	Plant
	Simulator
	Control Room
X	Classroom

Prepared:	Dave Bergstrom	**Date:**	August 28, 2014
Reviewed:	Steve Carter	**Date:**	October 1, 2014
	(Operations Representative)		
Approved:	Joey Clark	**Date:**	October 17, 2014
	(Facility Reviewer)		

EXAMINER INFO SHEET

Task Standard: Applicant determined the Primary Containment Water Level and correlated RPV water level in accordance with the key.

Synopsis: This task will have the applicant use given data and a procedure to determine the water level in the containment. This data will be further used to determine correlated water level in the RPV. The task is being performed because of a plant emergency that required entry into the Severe Accident Procedures (SAPs).

NOTE: This JPM is Administrative and will be performed in a classroom.

1) **Read to the operator**:

"I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied. Inform me when you have completed the task."

2) Initial Conditions:

The CRS has directed you to determine Containment water level AND a correlated RPV water level using step 3.3 of EOP-0005 Enclosure 23, Containment Water Level Determination.

3) Initiating Cues:

Containment Flooding is in progress in accordance with SAP-1; It has been determined that the vessel has been breached.

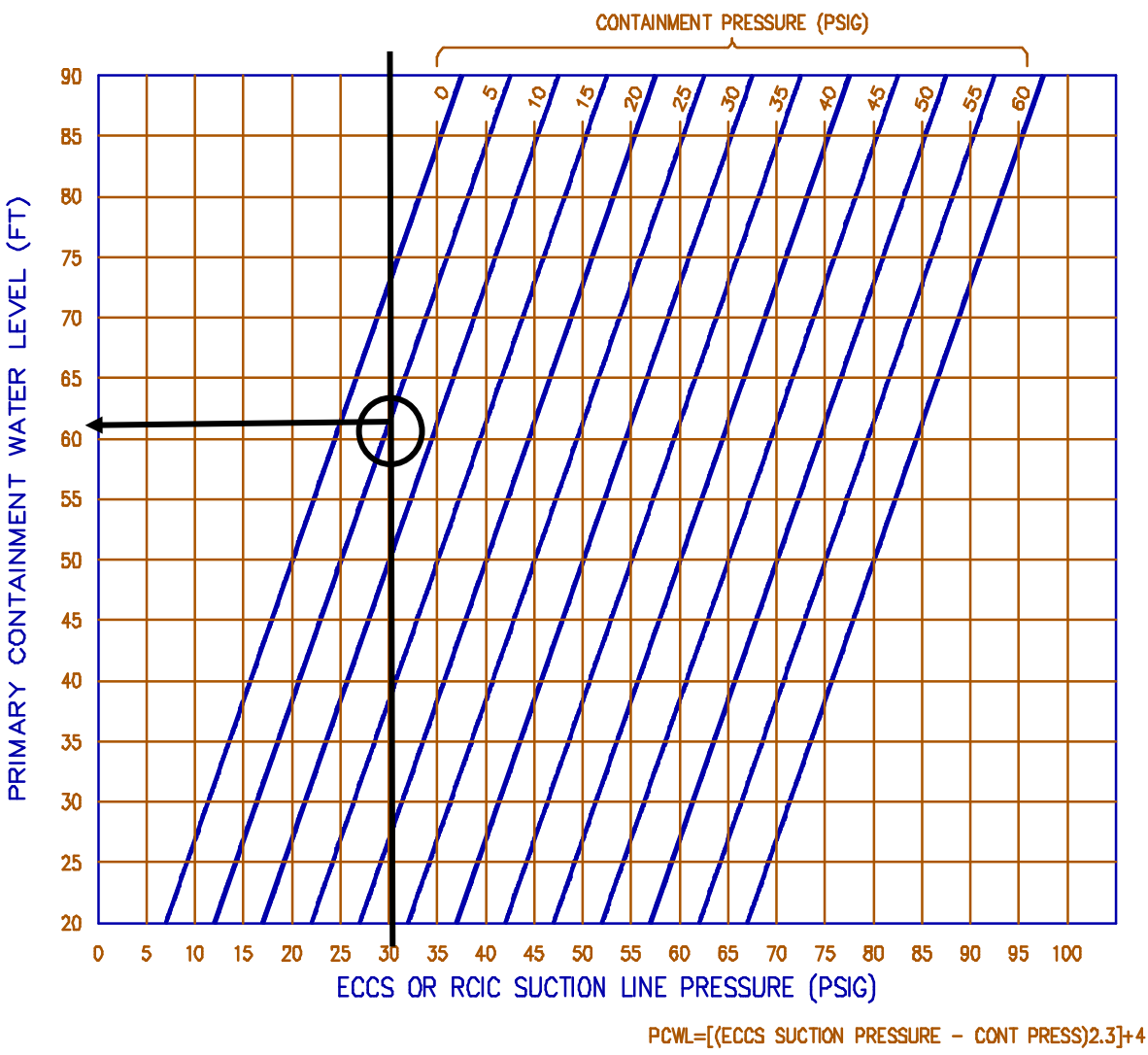
Suppression Pool level indication on panel H13-P808 is pegged upscale.

The following plant data has been obtained by completing Sections 3.1 and 3.2 of Enclosure 23:

- Div II CMS-PI17B indicates 5 psig
- E51-R604 RCIC PUMP SUCTION PRESSURE indicates 30 psig
- E51-F031 RCIC PUMP SUP PL SUCTION VALVE is open

4) Solicit and answer any questions the operator may have.

ANSWER KEY



ENCLOSURE 23	PAGE 7 OF 7	EOP-0005	REV.-314	PAGE 3 OF 139

ANSWER KEY

ENCLOSURE 23	CONTAINMENT PRESSURE AND WATER LEVEL DETERMINATION

TABLE 1

RPV WATER LEVEL TO CONTAINMENT WATER LEVEL CORRELATION

RPV WATER LEVEL - CONTAINMENT WATER LEVEL

-162 in. = 62 ft.

-174 in. = 61 ft.

-186 in. = 60 ft.

-198 in. = 59 ft.

-210 in. = 58 ft.

-222 in. = 57 ft.

-234 in. = 56 ft.

-246 in. = 55 ft.

-258 in. = 54 ft.

-270 in. = 53 ft.

-282 in. = 52 ft.

-294 in. = 51 ft.

-306 in. = 50 ft.

DATA SHEET

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Determine Containment Water Level During Containment Flooding	200063005001	G 2.4.21	4.0

REFERENCES:
EOP-00055, Encl 23, Containment Water Level Determination, Rev 314

APPLICABLE OBJECTIVES
RLP-HLO-0516, Obj 1

REQUIRED MATERIALS:
EOP Enclosure 23, Rev 314
Calculator

REASON FOR REVISION:
Rev 1 – changed validation time from 8 min to 10 min;
changed containment pressure from 7.5 to 5 psig and altered the JPM step accordingly
added graph key

SIMULATOR CONDITIONS & SETUP:

1. This is a classroom/Admin JPM – There is no simulator setup.

2. The RWP needs to be altered before giving it to applicants.

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: Applicant determined the Primary Containment Water Level and correlated RPV water level in accordance with the key.

PERFORMANCE:

START TIME: _____

1.	***Procedure Step:**	3.3 Determine Containment Water Level.
	Standard	Applicant determined water level of containment using graph figure 8 to be 61 feet. (+/- one foot) Applicant determined water level of containment using the calculation given to be 61.5 feet. (+/- one half foot)
	Cue	If applicant did not already perform calculation, as the CRS, request that the applicant confirm his finding on the graph using the calculation.
	Notes	PCWL = [(ECCS Suction Press – CTMT Press) x 2.3] + 4 [(30 – 5) x 2.3] + 4 = [25 x 2.3] +4 = 57.5 + 4 = 61.5
	Results	SAT ☐ UNSAT ☐

2.	***Procedure Step:**	Determine correlated RPV water level.
	Standard	Applicant determined the correlated RPV water level using Table 1 to be between -162” to -174”.
	Cue	
	Notes	Table 1 and Figure 8 are in the key of this JPM, pages 3 and 4.
	Results	SAT ☐ UNSAT ☐

Terminating Cue: Applicant determined the Primary Containment Water Level and correlated RPV water level in accordance with the key.

This completes this JPM.

STOP TIME: _____

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

Initial Conditions:

The CRS has directed you to determine Containment water level AND a correlated RPV water level using EOP-0005 Enclosure 23, Containment Water Level Determination.

Initiating Cues:

Containment Flooding is in progress in accordance with SAP-1.

Suppression Pool level indication on panel H13-P808 is pegged upscale.

The following plant data has been obtained by completing Sections 3.1 and 3.2 of Enclosure 23:

- Div II CMS-PI17B indicates 5 psig
- E51-R604 RCIC PUMP SUCTION PRESSURE indicates 30 psig
- E51-F031 RCIC PUMP SUP PL SUCTION VALVE is open

Answer Sheet:

Determine containment water level:

Answer:

Determine correlated RPV Water Level:

Answer:

NUCLEAR PLANT OPERATOR
ADMINISTRATIVE
JOB PERFORMANCE MEASURE

SRO ☒ **RO** ☐

ALTERNATE PATH ☐

TITLE: **Determine Stay Time for a Hot Environment**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**NA**	Actual Time (min):	**NA**
PERFORMANCE TIME:	Average Time (min):	20	Actual Time (min):	

JPM RESULTS*: (Circle one) * SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

X	Perform
	Simulate

EVALUATION LOCATION:

	Plant
	Simulator
	Control Room
X	Classroom

Prepared: Dave Bergstrom **Date:** September 7, 2014

Reviewed: Steve Carter **Date:** October 2, 2014
(Operations Representative)

Approved: Joey Clark **Date:** October 18, 2014
(Facility Reviewer)

EXAMINER INFO SHEET

Task Standard: Determination of the work demand classification and the stay time is in accordance with the attached key.

Synopsis: This task will have the applicant determine the type of work demand and the maximum stay time for an evolution involving two nuclear equipment operators. Use of EN-IS-108, Working in Hot Environments will be required.

NOTE: This JPM is Administrative and will be performed in a classroom.

1) **Read to the operator**:

"I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied. Inform me when you have completed the task."

2) Initiating Cues:

Complete the appropriate sections of Attachment 9.1, Heat Stress Survey Form, of EN-IS-108, Working in Hot Environments; disregard Recovery Time.

3) Initial Conditions:

The plant is in Mode 5; refueling is in progress.

Two Nuclear Equipment Operators are required to re-align two valves for the Fuel Pool Cooling and Cleanup System located in a room above the RB-162.

Both valves are infrequently operated but are considered easy to operate. The valves are in a C-Zone and require donning single anti-contamination clothing.

The dry bulb temperature is 95°F.

The wet bulb temperature is 102°F.

4) Solicit and answer any questions the operator may have.

ANSWER KEY

Entergy	NUCLEAR MANAGEMENT MANUAL	NON-QUALITY RELATED	EN-IS-108	REV. 10
		INFORMATIONAL USE	PAGE 12 OF 19	
Working in Hot Environments				

ATTACHMENT 9.1 — HEAT STRESS SURVEY FORM

Sheet 1 of 1

HEAT STRESS SURVEY FORM

Section 1

Heat Stress Area (Building, Elevation, Room) RB 177'

Description of Work Valve re-alignment

Scheduled Start Date/Time 09/18 0900 Duration 20 minutes

Work Group(s) *(Circle)* I&C ELEC MECH CHEM OPS RP ENG Other_____

Plant or System Status Mode 5 - Refueling

Section 2

WGBT: □ Historical Data _____ OR □ Actual WBGT Reading 102°F

Survey Performed By: Operator

(Name) (Date/Time)

Remarks:_____

Section 3

Location	WBGT Reading	Dress Requirements	Work Demand (L,M,H)
1) above 162 RB	102°F	Singles	M
2)			
3)			

	Stay Time (Attch. 9.4)		Stay Time (Attch. 9.7)		TOTAL Stay Time	Recovery Time (Attch. 9.4)
1)	25 minutes	+	NA	=	25 minutes	
2)		+		=		
3)		+		=		

Section 4

I have briefed entrants on: Stay Time, Self-Determination, Adequate Hydration, and Other Countermeasures. Additionally entrants retain the responsibility to verify that their entry into a heat stress environment does not conflict with precautions or restrictions listed for medication(s) they may be taking.

_____ _____

Work Group Supervisor (Print/Sign) Date/Time

DATA SHEET

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Determine Stay Time for a Hot Environment	300076003001	G 2.1.26	3.6

REFERENCES:
EN-IS-108, Working in Hot Environments, Rev 10

APPLICABLE OBJECTIVES

REQUIRED MATERIALS:
EN-IS-108, Rev 10

SIMULATOR CONDITIONS &/or SETUP:

1. This is a classroom/Admin JPM – There is no simulator setup

2.

CRITICAL ELEMENTS: Items marked with an "*" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: Determination of the work demand classification and the stay time is in accordance with the attached key.

PERFORMANCE:

START TIME: _____

1.	**Procedure Step:**	5.3 [1] Prior to performing work, the group supervisor shall determine whether heat stress conditions may be a factor:
	Standard	Applicant reviews precautions and limitations and the general requirements of EN-IS-108.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

2.	***Procedure Step:**	5.3 [2] From Attachment 9.2 • Select the appropriate work demand category from the table titled Work Demand
	Standard	Applicant selected the MODERATE Work Demand in accordance with Attachment 9.2.
	Cue	
	Notes	The activity for "Manual valve alignment – easy" is listed under Moderate Work Demand.
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	5.3 [2] From Attachment 9.2 • Select the appropriate clothing ensemble from the table titled Typical Clothing Ensembles
	Standard	Applicant selected SC (Single coveralls) in accordance with Attachment 9.2.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	**Procedure Step:**	5.3 [2] From Attachment 9.2 • Determine if heat stress may be a factor by reviewing the table titled Heat Stress Threshold Values 5.3 [3] If the dry bulb temperature is greater than, or expected to be greater than those listed, heat stress may be a factor; obtain a WBGT or reference historical temperature readings.
	Standard	Applicant determined that the Heat Stress Threshold is a factor in accordance with Attachment 9.2 by comparing the given condition of 95˚F dry bulb temperature and the threshold temperature of 90˚F. Applicant obtained wet bulb temperature from initial conditions.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

PROCEDURE NOTE
Attachment 9.1, Heat Stress Survey Form is not required if the stay time associated with the temperature is listed as No Limit (NL)

5.	***Procedure Step:**	5.3 [4] If the WBGT temperature obtained falls within the chart on Attachment 9.4, then a Heat Stress Survey Form, Attachment 9.1, shall be completed.
	Standard	Applicant completes Attachment 9.1 using step 5.3 [5], bullets 1, 2, and 3. Applicant determines max stay time to be 25 minutes in accordance with attachment 9.4.
	Cue	
	Notes	Intersection of 102˚F and Single PCs with a Work Demand of MOD.
	Results	SAT ☐ UNSAT ☐

Terminating Cue: Determination of the work demand classification and the stay time is in accordance with the attached key.

This completes this JPM.

STOP TIME: _____

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

Initiating Cues:

Complete the appropriate sections of Attachment 9.1, Heat Stress Survey Form, of EN-IS-108, Working in Hot Environments; disregard Recovery Time.

Initial Conditions:

The plant is in Mode 5; refueling is in progress.

Two Nuclear Equipment Operators are required to re-align two valves for the Fuel Pool Cooling and Cleanup System located in a room above the RB-162.

Both valves are infrequently operated but are considered easy to operate. The valves are in a C-Zone and require donning single anti-contamination clothing.

The dry bulb temperature is 95°F.

The wet bulb temperature is 102°F.

NUCLEAR PLANT OPERATOR
ADMINISTRATIVE
JOB PERFORMANCE MEASURE

SRO ☒ **RO** ☐

ALTERNATE PATH ☐

TITLE: **Determine Actions for Reactor Water Chemistry**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**NA**	Actual Time (min):	**NA**
PERFORMANCE TIME:	Average Time (min):	22	Actual Time (min):	

JPM RESULTS*: (Circle one) * SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

X	Perform
	Simulate

EVALUATION LOCATION:

	Plant
	Simulator
	Control Room
X	Classroom

Prepared:	Dave Bergstrom	**Date:**	September 8, 2014
Reviewed:	Steve Carter	**Date:**	October 2, 2014
	(Operations Representative)		
Approved:	Joey Clark	**Date:**	October 18, 2014
	(Facility Reviewer)		

EXAMINER INFO SHEET

Task Standard: Applicant determines that the plant startup may **not** continue.

Synopsis: This task will require an SRO to review given data and AOP-0058 to determine actions after a report from the Chemistry Department.

NOTE: This JPM is Administrative and will be performed in a classroom.

1) **Read to the operator**:

"I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied. Inform me when you have completed the task."

2) Initial Conditions:

A Plant Startup is in progress; currently in Mode 2.

Reactor power is 9% and RPV pressure is 950 psig.

Preparations are being made for taking the Mode Switch to RUN.

Chemistry has been contacted to verify water quality per GOP-0001, Plant Startup, Step 7 of Section E, 600 PSIG to RUN.

3) Initiating Cues:

The Chemistry Manager has just completed the required sampling of Reactor Water, Feedwater, Condensate, and CRD Water. Review the Chemistry data and determine the course of action for plant startup.

4) Solicit and answer any questions the operator may have.

ANSWER KEY

Answer Below

The Startup may continue YES (NO) *(circle one)*

PA

ABNORMAL WATER CHEMISTRY GUIDELINES

	EPRI NWC GUIDELINES POWER OPERATION >10%			TECH SPECS MODE 1
Control Parameter	**AL 1**	**AL 2**	**AL 3**	**Limit**
REACTOR WATER				
Conductivity @ 25 C µS/cm	>0.30	>1.0	>5.0	1.0
pH S. U.				5.6 ≤ pH ≤ 8.6
Chloride ppb or µg/L	>5	>20	>100	200
Sulfate ppb or µg/L	>5	>20	>100	
FINAL FEEDWATER				
Conductivity	>0.065			
Total Iron ppb	>5.0			
Total Copper ppb	>0.2			
CONDENSATE HOTWELL				

DATA SHEET

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Determine Actions for Reactor Water Chemistry	400084004001	G 2.1.34	3.5

REFERENCES: **APPLICABLE OBJECTIVES**
AOP-0058, Abnormal Chemistry, Rev 8

REQUIRED MATERIALS:
AOP-0058, Abnormal Chemistry, Rev 8
TR 3.4.13, Chemistry
GOP-0001, Plant Startup, Rev 82
CSP-0100, Chemistry – Required Surveillances and Actions, Rev 26

SIMULATOR CONDITIONS &/or SETUP:

1. This is a classroom/Admin JPM – There is no simulator setup

2.

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: Applicant determines that the plant startup may **not** continue.

PERFORMANCE:

START TIME: _____

Examiner Note: Give the following procedures to applicant as they are asked for:
GOP-0001, Plant Startup
CSP-0100, Chemistry – Required Surveillances and Actions
TR 3.4.13, Chemistry
AOP-0058, Abnormal Chemistry

1.	***Procedure Step:**	1. Determine the limiting chemistry value per TR 3.4.13, CSP-0100, and AOP-0058.
	Standard	Applicant determined the limiting parameter as chlorides in Reactor Water.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

2.	***Procedure Step:**	2. Determine the ability to continue plant startup.
	Standard	Applicant compared values and determined that the plant startup may **not** continue, based on being in Action Level 2 for Chlorides in AOP-0058.
	Cue	
	Notes	If applicant uses Attach 1 page 2 (for Startup/Hot Standby) of AOP-0058, then chlorides are in spec; the conditions of the JPM are for entering Mode 1. The applicant must recognize that the JPM conditions are for changing Modes and therefore must use the correct graph. Attachment 1, page 1 (for power > 10%), shows that Reactor Water Chlorides exceed the Action Level 2 criteria. (which may require shutdown)
	Results	SAT ☐ UNSAT ☐

Terminating Cue: Applicant determines that the plant startup may **not** continue.

This completes this JPM.

STOP TIME: _____

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

Initial Conditions:

A Plant Startup is in progress; currently in Mode 2.

Reactor power is 9% and RPV pressure is 950 psig.

Preparations are being made for taking the Mode Switch to RUN.

Chemistry has been contacted to verify water quality per GOP-0001, Plant Startup, Step 7 of Section E, 600 PSIG to RUN.

Initiating Cues:

The Chemistry Manager has just completed the required sampling of Reactor Water, Feedwater, Condensate, and CRD Water. Review the Chemistry data on the attached form and determine the course of action for plant startup.

Answer Below

The Startup may continue YES NO *(circle one)*

Reactor Water

Conductivity	0.25 µS/cm
pH	7.3 S.U.
Chloride	40 ppb
Sulfate	1.3 µg/L

Feedwater

Conductivity	0.061 µS/cm
Total Iron	0.92 ppb
Total Copper	0.12 ppb
Dissolved O_2	27 ppb

Condensate Hotwell

Conductivity	0.05 µS/cm

Control Rod Drive

Conductivity	0.10 µS/cm
Dissolved O_2	33 ppb

NUCLEAR PLANT OPERATOR
ADMINISTRATIVE
JOB PERFORMANCE MEASURE

SRO ☒ **RO** ☐

ALTERNATE PATH ☐

TITLE: **Determine Secondary Containment Operability**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**NA**	Actual Time (min):	**NA**
PERFORMANCE TIME:	Average Time (min):	15	Actual Time (min):	

JPM RESULTS*: (Circle one) * SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

X	Perform
	Simulate

EVALUATION LOCATION:

	Plant
	Simulator
	Control Room
X	Classroom

Prepared:	Dave Bergstrom	**Date:**	September 8, 2014
Reviewed:	Steve Carter	**Date:**	October 2, 2014
	(Operations Representative)		
Approved:	Joey Clark	**Date:**	October 18, 2014
	(Facility Reviewer)		

EXAMINER INFO SHEET

Task Standard: Applicant reviewed the reported condition and the daily logs and determined that annulus pressure is **not acceptable**

Synopsis: This task will have the applicant determine operability.

NOTE: This JPM is Administrative and will be performed in a classroom.

1) **Read to the operator**:

"I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied. Inform me when you have completed the task."

2) Initial Conditions:

The plant is mode 1, 100% power.

Annunciator H13-P863-72A-A01, ANNULUS PRESSURE HIGH is in Alarm, with an Annulus Pressure of -2.8 inches WC.

An operator was dispatched and reported that Aux Building Pressure is reading -0.34 in WC.

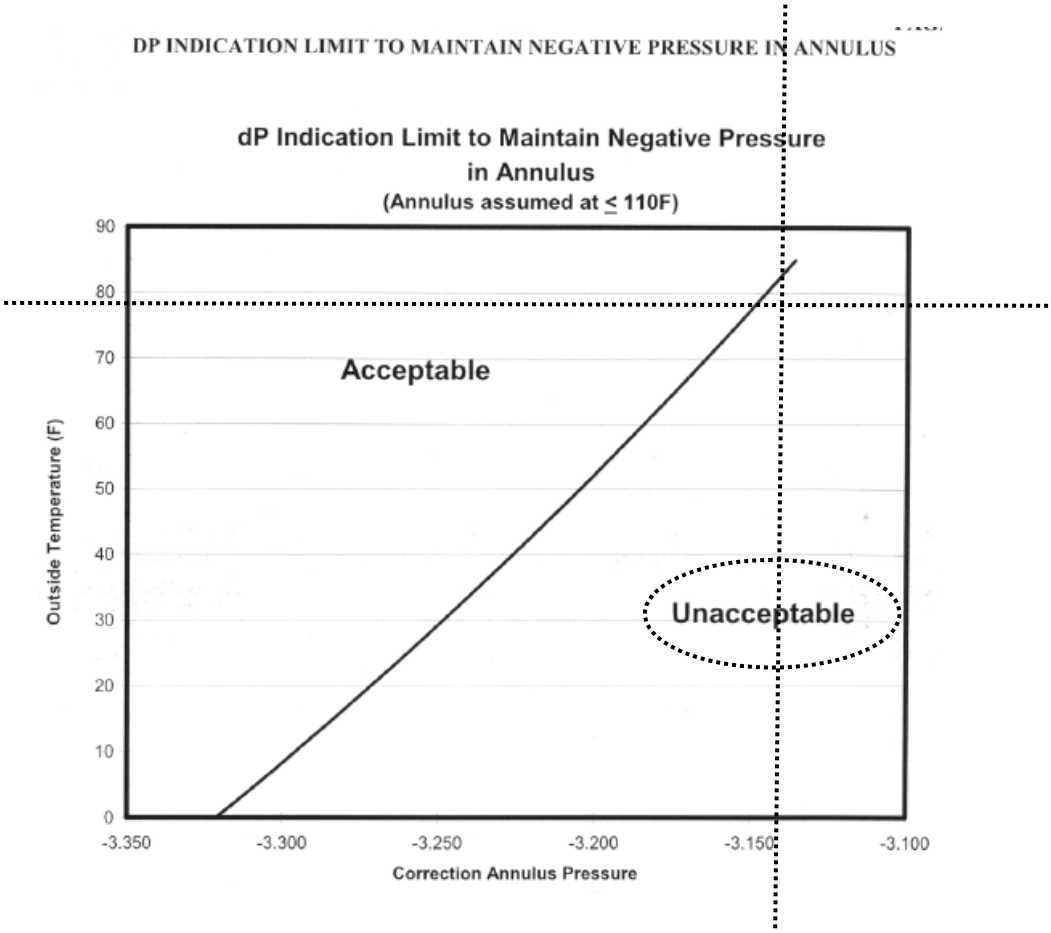
3) Initiating Cues:

You are the CRS. Determine if the Annulus Pressure is acceptable.

4) Solicit and answer any questions the operator may have.

ANSWER KEY

DP INDICATION LIMIT TO MAINTAIN NEGATIVE PRESSURE IN ANNULUS



DATA SHEET

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Determine Secondary Containment Operability	300095003001	G 2.2.12	4.1

REFERENCES: **APPLICABLE OBJECTIVES**
STP-000-0001, Daily Operating Logs, Rev 78
ARP-863-72A-A01, Rev 16

REQUIRED MATERIALS:
Marked up copy of STP-000-0001, Daily Operating Logs, Rev 78
ARP-863-72A-A01, Rev 16

SIMULATOR CONDITIONS &/or SETUP:

1. This is a classroom/Admin JPM – There is no simulator setup

2.

REASON FOR REVISION:
Rev 1 - Changed initial condition to allow for the dat to be plotted on the graph.

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: Applicant reviewed the prepared tagout and determined that it is annulus pressure is **not acceptable**.

PERFORMANCE:

START TIME: _____

1.	**Procedure Step:**	Determine corrected annulus pressure.
	Standard	Applicant used data provided to determine corrected annulus pressure to be -3.14 inches WC.
	Cue	
	Notes	Calculation per STP-000-0001 step 92. -2.8 + -0.34 = -3.14
	Results	SAT ☐ UNSAT ☐

2.	***Procedure Step:**	Determine is Annulus Pressure is acceptable.
	Standard	Applicant used Attachment 3 of STP-000-0001 to determine that annulus pressure is in the **unacceptable** region.
	Cue	
	Notes	See graph key on page 3 of this JPM.
	Results	SAT ☐ UNSAT ☐

Terminating Cue: Applicant reviewed the prepared tagout and determined that it is annulus pressure is **not acceptable**.

This completes this JPM.

STOP TIME: _____

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

Initial Conditions:

The plant is mode 1, 100% power.

Annunciator H13-P863-72A-A01, ANNULUS PRESSURE HIGH is in Alarm, with an Annulus Pressure of -2.8 inches WC.

An operator was dispatched and reported that Aux Building Pressure is reading -0.34 in WC.

Initiating Cues:

You are the CRS. Determine if the Annulus Pressure is acceptable.

Answer Below:

NUCLEAR PLANT OPERATOR
ADMINISTRATIVE
JOB PERFORMANCE MEASURE

SRO ☒ **RO** ☐

ALTERNATE PATH ☐

TITLE: **Determine Required Actions upon Radioactive Effluent Monitor Failure**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**NA**	Actual Time (min):	**NA**
PERFORMANCE TIME:	Average Time (min):	10	Actual Time (min):	

JPM RESULTS*: (Circle one) * SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

X	Perform
	Simulate

EVALUATION LOCATION:

	Plant
	Simulator
	Control Room
X	Classroom

Prepared: Dave Bergstrom **Date:** September 8, 2014

Reviewed: Steve Carter **Date:** October 2, 2014
(Operations Representative)

Approved: Joey Clark **Date:** October 18, 2014
(Facility Reviewer)

EXAMINER INFO SHEET

Task Standard: Applicant determined the effects of RMS-RE107 failure and the required actions to complete the radiological discharge in accordance with the key.

Synopsis: The applicant reviews given plant and environmental conditions, as well as the TRM to determine potential actions for allowing a radiological effluent discharge.

NOTE: This JPM is Administrative and will be performed in a classroom.

1) **Read to the operator**:

"I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied. Inform me when you have completed the task."

2) Initial Conditions:

Preparations for discharging Recovery Sample Tank TK4A utilizing LWS-P4A Recovery Sample Tank Pump are under way.

The Aux Control Room Operator reports that RCVY SAMPLE PROCESS RADIATION HIGH/MONITOR INOP is in Alarm (LWS-PNL187-4-C4). The RMS-RE107 Sample pump is tripped and hot to the touch.

3) Initiating Cues:

As the CRS, determine the impact on the current liquid radwaste discharge preparations and what actions, if any, will be required to perform the discharge.

4) Solicit and answer any questions the operator may have.

ANSWER KEY

Initial Conditions:

Preparations for discharging Recovery Sample Tank TK4A utilizing LWS-P4A Recovery Sample Tank Pump are under way.

The Aux Control Room Operator reports that RCVY SAMPLE PROCESS RADIATION HIGH/MONITOR INOP is in Alarm (LWS-PNL187-4-C4). The RMS-RE107 Sample pump is tripped and hot to the touch.

Initiating Cues:

As the CRS, determine the impact on the current liquid radwaste discharge preparations and what actions, if any, will be required to perform the discharge.

Answer Below:

RMS-RE107 is Operable / (Inoperable) *(circle one)*

What actions (if any) are required to continue with the liquid radiological release?

The discharge cannot be performed utilizing the RMS-RE107 Liquid Radwaste Effluent Radiation Monitor because sample flow must be ≥ 1 gpm.

The discharge may, however, continue by talking the actions of TRM 3.3.11.2 Action D:

Condition D.1 Perform a second independent set of samples and analyses per Table 3.11.1.1-1 prior to release

AND

Condition D.2 Perform verification of release rate calculation and discharge line valving by a second qualified member of the technical staff prior to release

AND

Condition D.3 Restore the channel to OPERABLE within 14 days

DATA SHEET

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Determine Required Actions upon Radioactive Effluent Monitor Failure	300169003002	G 2.3.11	4.3

REFERENCES:
TRM 3.3.11.2
TRM 3.11.1.1
LWS-PNL187-4-C4, Alarm Response

APPLICABLE OBJECTIVES

REQUIRED MATERIALS:
TRM 3.3.11.2
TRM 3.11.1.1
LWS-PNL187-4-C4, Alarm Response

SIMULATOR CONDITIONS &/or SETUP:

1. This is a classroom/Admin JPM – There is no simulator setup

2.

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: Applicant determined the effects of RMS-RE107 failure and the required actions to complete the radiological discharge in accordance with the key.

PERFORMANCE:

START TIME: _____

1.	**Procedure Step:**	1 Determine the impact of RMS-RE107 sample pump trip.
	Standard	Applicant determined that RMS-RE107 is INOPERABLE.
	Cue	
	Notes	TR 3.3.11.2; Table 3.11.1.1-1
	Results	SAT ☐ UNSAT ☐

2.	***Procedure Step:**	2 Determine what actions (if any) are required to continue with the liquid radiological release.
	Standard	Applicant determined that the radiological discharge could be allowed by taking the actions of Conditions D.1 and D.2 of TR 3.3.11.2.
	Cue	
	Notes	See answer key.
	Results	SAT ☐ UNSAT ☐

Terminating Cue: Applicant determined the effects of RMS-RE107 failure and the required actions to complete the radiological discharge in accordance with the key.

This completes this JPM.

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

Initial Conditions:

Preparations for discharging Recovery Sample Tank TK4A utilizing LWS-P4A Recovery Sample Tank Pump are under way.

The Aux Control Room Operator reports that RCVY SAMPLE PROCESS RADIATION HIGH/MONITOR INOP is in Alarm (LWS-PNL187-4-C4). The RMS-RE107 Sample pump is tripped and hot to the touch.

Initiating Cues:

As the CRS, determine the impact on the current liquid radwaste discharge preparations and what actions, if any, will be required to perform the discharge.

Answer Below:

RMS-RE107 is Operable / Inoperable *(circle one)*

What actions (if any) are required to continue with the liquid radiological release?

NUCLEAR PLANT OPERATOR
ADMINISTRATIVE
JOB PERFORMANCE MEASURE

SRO ☒ RO ☐

ALTERNATE PATH ☐

TITLE: **Determine PAR**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**15**	Actual Time (min):	
PERFORMANCE TIME:	Average Time (min):	**NA**	Actual Time (min):	**NA**

JPM RESULTS*: (Circle one) * SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

X	Perform
	Simulate

EVALUATION LOCATION:

	Plant
X	Simulator
	Control Room
	Classroom

Prepared: Dave Bergstrom **Date:** September 8, 2014

Reviewed: Steve Carter **Date:** October 2, 2014
(Operations Representative)

Approved: Joey Clark **Date:** October 18, 2014
(Facility Reviewer)

EXAMINER INFO SHEET

This is a Time Critical JPM

Task Standard: Applicant completed the PAR Block number and the Notification of General Emergency Short Form in accordance with the attached key within 15 minutes.

Synopsis: The applicant reviews given plant and environmental conditions to determine a Protective Action Recommendation. This is a TIME CRITICAL JPM.

NOTE: This JPM is Administrative and will be performed in a classroom.

1) **Read to the operator**:

"I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied. Inform me when you have completed the task."

3) Initial Conditions:

Use the following conditions:

- A General Emergency has just been declared due to release of gaseous radioactivity (AG1).
- The plant has experienced a loss of offsite power and a large break LOCA inside containment.
- Due to Hydrogen Concentration and Containment Pressure, Emergency Containment Venting is now required.

2) Initiating Cues:

As the acting Emergency Director, you have just been handed updated dose projections and meteorological information.

Review the updated data and, if necessary, alter the Protective Action Recommendations and complete a Notification of General Emergency short form.

This is a TIME CRITICAL JPM.

4) Solicit and answer any questions the operator may have.

ANSWER KEY

PAR BLOCK # 5

Notification of General Emergency			
Time/Date:	Current time / date	Message:	

This is River Bend Station

A General Emergency was declared at

Declaration time | on | Declaration date | for

AG 1-2
VALID reading on one or more radiation monitors in Table R1 that exceeds or is expected to exceed GENERAL EMERGENCY reading for greater than or equal to 15 minutes

Wind from 350 Deg At 3.1 MPH

○ No Release

PAR Reference Scenario No.: 27

○ Release BELOW federally approved operating limits

⊗ Release ABOVE federally approved operating limits

Authorized by: Applicant Name Title: Emergency Director

DATA SHEET

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Determine PAR	301016005003	G 2.4.44	4.4

REFERENCES:
EIP-2-007, Rev 25
EIP-2-006, Rev 41

APPLICABLE OBJECTIVES
DOSEPAR2, Obj 13

REQUIRED MATERIALS:
EIP-2-007, Rev 25
EIP-2-006, Rev 41

SIMULATOR CONDITIONS &/or SETUP:

1. This is a classroom/Admin JPM – There is no simulator setup
2. This task is **TIME CRITICAL**

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: Applicant completed the PAR Block number and the Notification of General Emergency Short Form in accordance with the attached key within 15 minutes.

PERFORMANCE:

START TIME: _____ This task is **TIME CRITICAL**

1.	***Procedure Step:**	1 Complete the PAR BLOCK using given data.
	Standard	Applicant completed PAR Block in accordance with the attached key.
	Cue	
	Notes	The applicant will use the provided cue sheet to gather readings.
	Results	SAT ☐ UNSAT ☐

2.	***Procedure Step:**	2 Complete the short form using given data.
	Standard	Applicant completed short form in accordance with the attached key.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

Terminating Cue: Applicant completed the PAR Block number and the Notification of General Emergency Short Form in accordance with the attached key within 15 minutes.

This completes this JPM.

STOP TIME: _____

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

Initial Conditions:

- A General Emergency has just been declared due to release of gaseous radioactivity (AG1).
- The plant has experienced a loss of offsite power and a large break LOCA inside containment.
- Due to Hydrogen Concentration and Containment Pressure, Emergency Containment Venting is now required.

Initiating Cues:

As the acting Emergency Director, you have just been handed updated dose projections and meteorological information.

Review the updated data and, if necessary, alter the Protective Action Recommendations and complete a Notification of General Emergency short form.

This is a TIME CRITICAL JPM.

DOSE ASSESSMENT for Emergency Containment Venting

DOSE RATE CALCULATIONS

TEDE Dose (REM):		CDE Dose (REM) Thyroid:	
Site Boundary	1.51E2	Site Boundary	2.02E3
2 Miles	2.66E1	2 Miles	4.06E2
5 Miles	6.09E0	5 Miles	9.44E1
10 Miles	1.88E0	10 Miles	2.55E1

Meteorological Data

Wind Speed	3.1 mph	Wind Direction	350 deg.
Delta T	-0.7^{o}F	Stability Class	D

OPERATOR ANSWER SHEET

PAR BLOCK # _____

Notification of General Emergency		
Time/Date: Current time / date		Message:
This is River Bend Station A General Emergency was declared at Declaration time on Declaration date for		
Wind from_____ Deg.	At_____ MPH	
○ No Release	PAR Reference Scenario No.:	
○ Release BELOW federally approved operating limits		
○ Release ABOVE federally approved operating limits		
Authorized by:	Title:	

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
SRO ☒ RO ☒

ALTERNATE PATH ☒

TITLE: **Pull Control Rods to Achieve Criticality, with a Trip of CRD Pump**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**NA**	Actual Time (min):	**NA**
PERFORMANCE TIME:	Average Time (min):	10	Actual Time (min):	

JPM RESULTS*: (Circle one) * SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

X	Perform
	Simulate

EVALUATION LOCATION:

	Plant
X	Simulator
	Control Room

Prepared: Dave Bergstrom **Date:** September 21, 2014

Reviewed: Steve Carter **Date:** October 2, 2014
(Operations Representative)

Approved: Joey Clark **Date:** October 18, 2014
(Facility Reviewer)

EXAMINER INFO SHEET

Task Standard: Reactor Mode switch is placed in "Shutdown" after receiving one accumulator fault for a withdrawn control rod.

Synopsis: The applicant is directed to withdraw control rods to achieve criticality. Before criticality is reached however, at the evaluators' discretion, a CRD pump trip occurs. As an alternate path, the standby CRD pump is started but also trips. The operator will be required to place the mode switch in SHUTDOWN after receiving an accumulator fault associated with a withdrawn control rod and RPV pressure less than 600 psig.

NOTE: If in the Plant or the Control Room, **Caution** the operator NOT to MANIPULATE the controls, but to make clear what they would do if this were not a simulated situation.

1) **Read to the operator**:

"I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied. Inform me when you have completed the task."

2) Initiating Cues:

The CRS has directed you to withdraw control rods to achieve criticality and raise reactor power to the point of adding heat IAW RMP-18-002, beginning at step 39.

3) Initial Conditions:

A plant startup is in progress following a refueling outage.
GOP-0001 is completed up to step C.11
Control Rod withdrawal is in progress.
RMP-18-002 is completed through step 38.
Estimated criticality is step 40.
A Reactor Engineer is verifying Control Rods per the movement plan.
SRM initial count rate was 80 cpm.

4) Solicit and answer any questions the operator may have.

DATA SHEET

TASK Title:	**Task Number**	**K&A SYSTEM:**	**K&A RATING:**
Pull Control Rods to Achieve Criticality, with a Trip of CRD Pump	201020001001 201006001001	201005 A3.04 201005 A4.01 201001 A2.01 295022 AK2.02 295022 AA1.01	3.3 / 3.3 3.7 / 3.7 3.2 / 3.3 3.1 / 3.1 3.1 / 3.2

REFERENCES:
RMP- 18-002
SOP-0071, Rev 29
OSP-0022, Sect 4.10 and Attach 1, Rev 72
ARP-601-22-A01, G02, Rev 16
ARP-680-07-C03, Rev 34
Tech Spec 3.1.5

APPLICABLE OBJECTIVES
RLP-STM-0500, Obj 8, 10, 11, 18

REQUIRED MATERIALS:
RMP-18-002
All other procedures are available in the simulator

SAFETY FUNCTION:
__1__

SIMULATOR CONDITIONS & SETUP:

1. IC # 255
2. Required Power: Shutdown, De-pressurized, Startup RMP in progress.
3. Event T1: Trigger set up for a clogged CRD suction filter/ trip of CRD Pump A. (to be fired at the evaluators discretion)
4. Override: DI_C11-C001B, STOP, CRD Pump B Aux Oil Pump Control switch.
5. Malfunction T3, CRDM4449 ACCUMFLTS (initiate on examiner cue)

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: Reactor Mode switch is placed in "Shutdown" after receiving one accumulator fault for a withdrawn control rod.

PERFORMANCE:

START TIME: _____

SOP-0071
Section 5.1, Performing Control Rod Notch Movement

PROCEDURE NOTE

Section 5.1 is designated as Reference Use.

If problems with indications or stall flows greater than 4 gpm occur during rod movement, Attachment 8, Control Rod Deficiency Report should be completed.

Main Steam Line Radiation Monitor (MSLRM) indication will gradually lower over a one to two month period following On-Line NobleChem application. During this time period, power changes and rod movements are expected to result in MSLRM indication fluctuations.

1.	***Procedure Step:**	5.1.1. Notch Control Rod Withdrawal 1. At H13-P680, on the Rod Select Module, select the rod to be moved.
	Standard	Applicant selected the correct control rod per RCP-18-002, step 39 by depressing the two rod select numbers simultaneously. (rod 44-49)
	Cue	As the Peer Checker, verify that the intended control rod is selected.
	Notes	The selected rod will show rod position on the Rod Display Module. OSP-0022, Operations General Administrative Guidelines, Attachment 1 would normally be used with the ATC, a Peer Checker, and a Reactivity SRO stationed at P680. See next page for a copy of this procedure.
	Results	SAT ☐ UNSAT ☐

INFORMATION USE **ATTACHMENT 1**
PAGE 1 OF 1

CONTROL ROD MOVEMENT EXPECTATIONS

The table below outlines the expected actions and responses by the individuals involved with control rod manipulations. Although not specifically stated in each step, the expectation is that each step be clearly communicated using precise information.

	PERFORMER (verbalize each intended action)	PEER CHECKER (verbalize each intended action)	REACTIVITY SRO
1	**STATE** the intended control rod to be selected and **SELECT** the intended rod on the Rod Select Matrix **DEPRESS** the SELECTED GROUP pushbutton and **CHECK** the positions of the control rods within the group are correct prior to movement.	**VERIFY** the intended control rod to be selected and **OBSERVE** the intended actions. **CHECK** the positions of the control rods within the group are correct prior to movement.	**OBSERVE** the selecting of the control rod and confirm using rod movement sheet.
2	**REMOVE** the cover for the insert or withdraw push button and **POINT** with finger next to switch(es) to be manipulated for control rod insertion or withdrawal. **STATE** intent of step: Rod number, initial position, target position and method of movement (notch / continuous).	**TOUCH** or **POINT** to the step on rod movement sheet and **VERIFY** intent: Rod number, initial position, target position and method of movement (notch / continuous) and that correct switch(es) being identified for intended rod movement.	**OBSERVE** & **MONITOR** that the intended actions are being precisely stated and verified and correct switches were identified and verified for intended rod movement.
3	**MOVE** the selected rod to the intended position **(NOTE 1)** while monitoring movement. **VERIFY** the as left position matches the target on the movement sheet and document and **REPLACE** the cover over the insert or withdraw push button.	**VERIFY** correct direction **and** the intended position. **CONFIRM** the as left position to the target position on the movement sheet	**MONITOR** the control rod movement and **OBSERVE** expected plant response. **ACKNOWLEDGE** the as left position of the control rod verbally after comparing to rod movement sheet

NOTE 1: Conditions that do not allow withdrawal to the target position use the following guidelines:
For double-clutching of control rods refer to the applicable SOP.
When a rod block occurs due to the Rod Withdrawal Limiter, after de-selecting the rod, reselect the rod with the peer check verifying the proper rod has been reselected and continue movement.
When distractions interrupt control rod motion, reperform the applicable steps of this guide to allow a human performance reset prior to starting back moving rods.

2.	**Procedure Step:**	5.1.1. Notch Control Rod Withdrawal 2. Depress SELECTED GROUP button to check positions of control rods within group are correct prior to movement.
	Standard	Applicant depressed and held the SELECTED GROUP button. Applicant compared the control rods in the group on the Rod Display Module to the RMP for correct rods and correct rod positions. Applicant then releases the SELECTED GROUP button.
	Cue	As the Peer Checker, verify the positions of the rods in the selected group prior to applicant withdrawing the rod.
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	5.1.1. Notch Control Rod Withdrawal 3. Check that a Rod Withdrawal Block or Inhibit does <u>not</u> exist.
	Standard	Applicant verified the lack of Control Rod Block and Inhibit by (1) observing extinguished inhibit lights on the Pattern Control section of the Operator Control Module (2) observing extinguished Withdraw Block light on the Rod Motion section of the Operator Control Module (3) observing extinguished Withdraw Block light on the vertical section of insert 7 on P680 (C01)
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	***Procedure Step:**	5.1.1. Notch Control Rod Withdrawal 4. On H13-P680, depress and hold C11-S334, WITHDRAW Pushbutton until the IN indicator is lit or the start of rod motion is observed.
	Standard	Applicant removed the cover for the withdraw button. Applicant stated intent of withdrawing control rod 44-49 one notch from position 04 to position 06 Applicant depressed the WITHDRAW Pushbutton. Applicant released the WITHDRAW Pushbutton when rod motion was observed.
	Cue	As Peer Checker, verify the intended action of withdrawing the correct rod one notch from position 04 to position 06.
	Notes	The peer checking is from OSP-0022 (copy on previous page of JPM)
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	5.1.1. Notch Control Rod Withdrawal 5. Check that the new rod notch position displayed is the next highest <u>even</u> number.
	Standard	Applicant verified intended position of control rod just moved. Applicant replaced cover on the WITHDRAW pushbutton. Applicant observed plant response to control rod movement.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

6.	**Procedure Step:**	5.1.1. Notch Control Rod Withdrawal 1. At H13-P680, on the Rod Select Module, select the rod to be moved.
	Standard	Applicant will repeat JPM steps 1 through 5 as necessary/desired.
	Cue	
	Notes	The applicant may be allowed to move as many rods as the evaluator would like to see. The reactor will be critical at approximately step 40 of the RMP the applicant is using. The evaluator will may request Trigger 1 at ANY POINT following step 5, when ready for the CRD malfunction.
	Results	SAT ☐ UNSAT ☐

ALTERNATE PATH:

ARP-601-22A-G02, CRD Pump Suction Filter High D/P
ARP-601-22A-B01, CRD Pump A Overload Pre-Trip Warning

ARP-601-22A-A01, CRD Pump A Auto Trip

PROCEDURE NOTE

With no CRD Pumps running, the Reactor Recirc Pump seal purge supply is lost.

	Procedure Step:	Applicant transitions to ARP-601-22A-A01, CRD Pump A Auto Trip
	Standard	NA
	Cue	Explain to the applicant that the peer checker Reactor Operator (RO) will monitor the core while the applicant addresses the alarm.
	Notes	The first two alarms come in just prior to the Alarm/Trip of the CRD Pump, The Auto Trip Alarm requires Operator Actions. The applicant will refer to ARP-601-22A-A01, CRD Pump Trip and perform the operator actions The dedicated reactivity reactor operator would not normally be the one to address the alarm in this situation; but for this JPM, he will be relieved by the peer checker. If the applicant chooses to use SOP-0002, CRD, he will call a building operator to perform pre-start checks.

7.	**Procedure Step:**	1. Start the standby CRD Pump as follows: a. Start Standby CRD Pump Aux Oil Pump C11-C001BP
	Standard	Applicant attempts to start the B – CRD Aux Oil Pump. Applicant contacts a building operator to investigate the B Aux Oil Pump.
	Cue	
	Notes	Turning the start switch (spring return) should start the aux oil pump, which would be indicated by a red light on, green light off, but the aux oil pump is faulted to not start, so the green light remains on and the red light remains off.
	Results	SAT ☐ UNSAT ☐

Evaluator NOTE:

While no CRD pumps are running, control rod accumulator pressures are lowering. There is an alarm associated with low accumulator pressure: P680-07-C03, Accumulator Trouble. The ARP currently being used, ARP-601-22A-A01 has actions to take for these conditions (accumulator fault on a withdrawn control rod and reactor pressure less than 600 psig). The applicant may or may not reference the ARP for the accumulator fault, ARP-680-07-C03, but will perform the action anyway (to determine which rod is alarming).

8.	***Procedure Step:**	2. If neither CRD Pump can be restarted, THEN perform the following: a. IF reactor pressure is less than 600 psig AND one or more control rod accumulator faults exist for withdrawn control rod(s) which can not be inserted, THEN immediately place the reactor mode switch to SHUTDOWN per LCO 3.1.5 Condition D.
	Standard	When one accumulator faults exists on a withdrawn control rod, the applicant placed the mode switch to SHUTDOWN.
	Cue	
	Notes	Examiner will signal the floor operator to initiate a malfunction which will cause an accumulator fault on a withdrawn control rod. (time compression)
	Results	SAT ☐ UNSAT ☐

Terminating Cue: Reactor Mode switch is placed in “Shutdown” after receiving one accumulator fault for a withdrawn control rod.

This completes this JPM.

STOP TIME: _____

Examiner Note: Inform the applicant of the use of time compression for this JPM.

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

INITIAL CONDITIONS:

A plant startup is in progress following a refueling outage.
GOP-0001 is completed up to step C.11
Control Rod withdrawal is in progress.
RMP-18-002 is completed through step 38.
Estimated criticality is step 40.
A Reactor Engineer is verifying Control Rods per the movement plan.
SRM initial count rate was 80 cpm.

INITIATING CUE:

The CRS has directed you to withdraw control rods to achieve criticality and raise reactor power to the point of adding heat IAW RMP-18-002, beginning at step 39.

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
SRO ☒ RO ☒

ALTERNATE PATH ☒

TITLE: **Shutdown RCIC using SOP – w/ Drain Trap Level High**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**NA**	Actual Time (min):	**NA**
PERFORMANCE TIME:	Average Time (min):	10	Actual Time (min):	

JPM RESULTS*: (Circle one) * SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

X	Perform
	Simulate

EVALUATION LOCATION:

	Plant
X	Simulator
	Control Room

Prepared:	Dave Bergstrom	**Date:**	September 4, 2014
Reviewed:	Steve Carter (Operations Representative)	**Date:**	October 2, 2014
Approved:	Joey Clark (Facility Reviewer)	**Date:**	October 18, 2014

EXAMINER INFO SHEET

Task Standard: RCIC secured, in a standby lineup with the Gland Seal Compressor running.

Synopsis: RCIC is running and will be placed into a standby condition by the applicant. Near the end of the procedure, an Annunciator comes in that causes the operator to respond. The direction in the Alarm Response Procedure will have the applicant restart the Gland Seal Compressor.

NOTE: If in the Plant or the Control Room, **Caution** the operator NOT to MANIPULATE the controls, but to make clear what they would do if this were not a simulated situation.

1) **Read to the operator**:

"I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied. Inform me when you have completed the task.

2) Initiating Cues:

The CRS has directed you to secure RCIC using the SOP and place it in a Standby Lineup.

3) Initial Conditions:

RCIC has just completed a post-maintenance test and is ready to be placed into a standby condition.

RCIC is currently running in a CST to CST lineup.

Containment Low Volume Purge is in progress.

RHR-A is in Suppression Pool Cooling mode of operation

4) Solicit and answer any questions the operator may have.

DATA SHEET

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Shutdown RCIC using SOP – w/ Drain Trap Level High	217018001001	217000 A4.03 217000 A4.10	3.4 / 3.3 3.6 / 3.5

Reason for Revision

REFERENCES:
SOP-0035, Rev 47
ARP-601-21-A02, Rev 312,
RCIC Turbine Exhaust Drain Trap Level High

APPLICABLE OBJECTIVES
RLP-STM-0209, Obj 5,10

REQUIRED MATERIALS:
Simulator Copy of SOP and ARP

SAFETY FUNCTION:
__2__

SIMULATOR CONDITIONS & SETUP:

1. IC # 257
2. Rx Power: any
3. RCIC running in a CST to CST lineup
4. Cont Low Vol Purge and Supp Pool Cooling running
5. T1: Malfunction for initiating the alternate path (p601_21a:a2)
6. Event 1: zdi5(561) = 1 event triggered by the RCIC Gland Seal Compr. switch to STOP with a delay of 12 seconds

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: RCIC secured, in a standby lineup with the Gland Seal Compressor running.

PERFORMANCE:

START TIME: _____

SOP-35, Section 6.1, RCIC System Shutdown

Examiner Note: The applicant may make a plant announcement about securing RCIC.

1.	***Procedure Step:**	6.1.1 Depress E51-S17, RCIC Turbine Trip pushbutton.
	Standard	Applicant depressed the RCIC Trip Pushbutton.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	6.1.2 Verify E51-MOVC002, RCIC Trip & Throttle Valve Position indicates closed.
	Standard	Applicant verified the Trip/Throttle Valve closed as indicated by the green light on and the red light off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	6.1.3 Verify RCIC speed lowering as indicated on E51-C002-1, RCIC TURB SPEED.
	Standard	Applicant verified RCIC speed lowering as indicated on E51-C002-1.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	**Procedure Step:**	6.1.4 Reset any RCIC Initiation signals as follows: 1. Verify E51-C002C, Gland Seal Compressor control switch in START 2. Depress the RCIC Initiation Reset pushbutton 3. Verify RCIC Initiation Reset white light is off.
	Standard	Applicant verified the Gland Seal Compressor Switch in Start as indicated by the switch being in the AUTO position and the red flag showing. Applicant depressed the RCIC Initiation Reset pushbutton. Applicant verified the white initiation reset light off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

5.	***Procedure Step:**	6.1.5 Close E51-F045, RCIC Steam Supply Turbine Stop Valve and verify the following: • E51-F025, RCIC STM SPLY DR POT Up Stream ISOL Valve is open. • E51-F026, RCIC STM SUPLY DR POT Dn Stream ISOL Valve is open. • E51-F004, RCIC Turb Exh DR POT Up Stream ISOL Valve is open. • E51-F005, RCIC Turb Exh DR POT Dn Stream ISOL Valve is open.
	Standard	Applicant closed the F045 valve by rotating handswitch and verified it closed as indicated by the green light on and the red light off. Applicant verified the four indicated isolation valves are open as indicated by the green lights on and the red lights off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

6.	**Procedure Step:**	6.1.6 Verify E51-F013, RCIC Inject Isol Valve is closed
	Standard	Applicant verified the valve closed as indicated by the green light on and the red light off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

7.	**Procedure Step:**	6.1.7 Verify E51-F022, RCIC Test Bypass Vlv to CST is closed
	Standard	Applicant closed the test bypass valve by rotating and holding the handswitch to close until the green light was on and the red light off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

8.	**Procedure Step:**	6.1.8 Verify E51-F059, RCIC Test Return Vlv to CST is closed
	Standard	Applicant closed the test return valve by rotating the handswitch to close and observing the green light on and the red light off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

9.	**Procedure Step:**	6.1.9 Verify E51-F019, RCIC Min Flow Vlv to Suppression Pool is closed
	Standard	Applicant verified the min flow valve closed as indicated by the green light on and the red light off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

10.	**Procedure Step:**	6.1.10 Close E51-C002, RCIC Trip & Throttle Valve Operator.
	Standard	Applicant rotated the Trip/Throttle switch to CLOSE and held it there until the valve closes as indicated by the green light on and the red light off.
	Cue	
	Notes	This is a spring return throttle valve switch
	Results	SAT ☐ UNSAT ☐

11.	***Procedure Step:**	6.1.11 IF a RCIC isolation signal is not present, THEN open E51-C002, and verify RCIC Trip & Throttle Valve Position red light is on.
	Standard	Applicant rotated the Trip/Throttle switch to OPEN and held it there until the valve opened as indicated by the red light on and the green light off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

12.	***Procedure Step:**	6.1.12 Verify E51-R600, RCIC Pump Flow Flow Controller HVYC002 in AUTO and set to 600 gpm.
	Standard	Applicant adjusted the tape set on E51-R600 to set it to 600 gpm.
	Cue	
	Notes	The flow controller is set for 400 gpm when the JPM begins.
	Results	SAT ☐ UNSAT ☐

13.	**Procedure Step:**	6.1.13 WHEN RCIC has been secured for 15 to 30 minutes, THEN add oil as necessary to re-establish level just below the maximum level indication.
	Standard	{cue 1} Applicant contacted the building operator to perform step 6.1.13. {cue 2}
	Cue	{1} time compression: it has been 30 minutes. {2} as building operator, accept direction to add oil and report back that oil levels are satisfactory.
	Notes	
	Results	SAT ☐ UNSAT ☐

14.	**Procedure Step:**	6.1.14 WHEN 30 minutes have elapsed, THEN stop E51-C002C, Gland Seal Compressor
	Standard	Applicant rotated the compressor breaker switch to STOP.
	Cue	
	Notes	Previous cue told the applicant that 30 minutes have passed. When applicant rotates switch to STOP, a malfunction will automatically be inserted that causes a turbine exhaust drain trap high level.
	Results	SAT ☐ UNSAT ☐

ALTERNATE PATH:

	Procedure Step:	ALARM: ARP-601-21A-A02, RCIC Turbine Exhaust Drain Trap Level High
	Standard	Applicant transitions to ARP
	Cue	
	Notes	

15.	**Procedure Step:**	1. Verify Automatic Actions occur.
	Standard	Applicant verified that automatic actions occurred by checking E51-F005, RCIC Turb Exh DR POT Dn Stream ISOL Valve is open as indicated by the red light on and the green light off, AND E51-F045, RCIC Steam Supply Turbine Stop Valve is closed as indicated by the the green light on and the red light off.
	Cue	If called, as work control/maintenance/I&C, accept the direction to investigate
	Notes	
	Results	SAT ☐ UNSAT ☐

16.	**Procedure Step:**	2. Verify E51-F004, RCIC Turb Exh DR POT Up Stream ISOL Valve is open.
	Standard	Applicant verified that E51-F004, RCIC Turb Exh DR POT Up Stream ISOL Valve is open as indicated by the red light on and the green light off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

17.	***Procedure Step:**	3. Start E51-C002C, Gland Seal Compressor and run for at least 20 minutes after alarm clears.
	Standard	Applicant starts the Gland Seal Compressor by rotating the breaker switch to the start position and verifying the red light on and the green light off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

Terminating Cue: RCIC secured, in a standby lineup with the Gland Seal Compressor running.

This completes this JPM.

STOP TIME: _____

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

INITIAL CONDITIONS:

RCIC has just completed a post-maintenance test and is ready to be placed into a standby condition.

RCIC is currently running in a CST to CST lineup.

Containment Low Volume Purge is in progress.

RHR-A is in Suppression Pool Cooling mode of operation

INITIATING CUE:

The CRS has directed you to secure RCIC using the SOP and place it in a Standby Lineup.

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
SRO ☒ RO ☒

ALTERNATE PATH ☐

TITLE: **Perform BPV Cycle Test (STP-509-0101)**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**NA**	Actual Time (min):	**NA**
PERFORMANCE TIME:	Average Time (min):	10	Actual Time (min):	

JPM RESULTS*: (Circle one) * SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

X	Perform
	Simulate

EVALUATION LOCATION:

	Plant
X	Simulator
	Control Room

Prepared:	Dave Bergstrom	**Date:**	October 29, 2014
Reviewed:	Steve Carter (Operations Representative)	**Date:**	October 30, 2014
Approved:	Joey Clark (Facility Reviewer)	**Date:**	October 30, 2014

EXAMINER INFO SHEET

Task Standard: Bypass Valve #1 is closed ; STP-509-0101, Main Turbine Bypass System Valve Cycle Test, Section 7.2, Bypass Valve 1 Test, is complete.

Synopsis: The reactor is at ≈70% power during a plant startup. This task will have the applicant perform a surveillance that will demonstrate the #1 BPV is operable by cycling the valve through at least one complete cycle of full travel.

NOTE: If in the Plant or the Control Room, **Caution** the operator NOT to MANIPULATE the controls, but to make clear what they would do if this were not a simulated situation.

1) **Read to the operator**:

"I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied. Inform me when you have completed the task."

2) Initiating Cues:

The CRS has directed you as the Unit Operator to perform STP-509-0101, Main Turbine Bypass System Valve Cycle Test, for Bypass Valve 1 ONLY.

3) Initial Conditions:

The reactor is at ≈ 70% power during a plant startup.
No Rod withdrawal is scheduled during the performance of this STP.
Both Turbine Bypass Valves (BPVs) are closed.

4) Solicit and answer any questions the operator may have.

DATA SHEET

TASK Title:	**Task Number**	**K&A SYSTEM:**	**K&A RATING:**
Perform BPV Cycle Test (STP-509-0101)	241001002001	241000 K4.19 A4.06	3.6 / 3.7 3.9 / 3.9

REFERENCES:
STP-509-0101, Rev 012

APPLICABLE OBJECTIVES
RLP-STM-0110, Obj 2

REQUIRED MATERIALS:
Marked up copy of STP-509-0101, Rev 012

SAFETY FUNCTION:
3

SIMULATOR CONDITIONS & SETUP:

1. IC # 257
2. Required Power: > 23.8% RTP
3. ERIS operating with computer points available for performing Attachment 9
4. Mark up a copy of STP-509-0101 for the students use in the simulator. Complete section 6 and NA section 7.3
5. A floor operator will be required to silence and acknowledge the alarm.

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: Bypass Valve #1 is closed ; STP-509-0101, Main Turbine Bypass System Valve Cycle Test, Section 7.2, Bypass Valve 1 Test, is complete.

PERFORMANCE:

START TIME: _____

STP-509-0101, Main Turbine Bypass System Valve Cycle Test

7.1. Pretest Equipment Lineup

1.	**Procedure Step:**	7.1.1 In the BYPASS VALVE TEST STATUS group, depress the TESTING pushbutton momentarily
	Standard	Applicant located/identified and depressed the TESTING pushbutton.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	7.1.2 Check the following occurs: 1. The OFF light goes off. 2. The TESTING light comes on. 3. The READY light comes on.
	Standard	Applicant verified the OFF light is no longer lit. Applicant verified the TESTING and READY lights are now lit.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

Procedure Note:

- *The Fast Acting Solenoid can be verified by Bypass Valve (BPV) position indication or Servo current as the BPV opens. There is no sudden change in valve position during the closing stroke.*
- *Valve movement can best be observed at C85AM5, 1 BYPASS VALVE POSITION meter*
- *The stroke time of BPV 1 is approximately 4 to 5 seconds, in either direction.*

7.2 Bypass Valve 1 Test

3.	**Procedure Step:**	7.2.1 Depress and hold the TEST BPV 1 pushbutton.
	Standard	Applicant located and depressed the TEST BPV 1 pushbutton and remains holding the button depressed.
	Cue	Inform the applicant that the ATC will acknowledge any annunciators.
	Notes	The sub-steps of 7.2 will be reviewed by the applicant, performed as written, then the paperwork/procedure marking completed.
	Results	SAT ☐ UNSAT ☐

4.	**Procedure Step:**	7.2.2. Check the following occurs: 1. The READY light goes off. 2. The TEST BPV 1 light comes on. 3. Small positive current change on C85AM4, 1 BYPASS VALVE SERVO CURRENT meter. 4. BPV 1 is traveling smoothly in the open direction as indicated on C85AM5, 1 BYPASS VALVE POSITION meter. 5. Annunciator P680-07A-A07, TURBINE BYPASS VALVE OPEN alarms.
	Standard	Applicant verified the READY light is no longer lit. Applicant verified the TEST BPV 1 light is now lit. Applicant located/identified the C85AM4 meter, and verified a small positive current is present. Applicant located/identified the C85AM5 meter, and verified that the #1 BPV is travelling in the open direction. Applicant verified annunciator for the BPV OPEN alarmed.
	Cue	
	Notes	A floor operator will silence and acknowledge the annunciator. The stroke time of BPV 1 is approximately 4 - 5 seconds, in either direction.
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	7.2.2. Check the following occurs: 6. The Fast Acting Solenoid operates properly as BPV 1 opens.
	Standard	Applicant verified that BPV 1 traveled smoothly in the open direction.
	Cue	
	Notes	The Fast Acting Solenoid can be verified by BPV position indication or Servo current as the BPV opens. There is no sudden change in valve position during the closing stroke.
	Results	SAT ☐ UNSAT ☐

6.	**Procedure Step:**	7.2.2. Check the following occurs: 7. Verify BPV 1 is full open by one of the following: • C85AM5, BYPASS VALVE POSITION. • ERIS point C85EA012, BYPASS VALVE 1 POSITION. • Only the FULL OPEN indicator light is on.
	Standard	Applicant used at least one of the three full open indications to verify that the #1 BPV was full open.
	Cue	
	Notes	If ERIS point is used, a position of 1.0 indicates full open.
	Results	SAT ☐ UNSAT ☐

Procedure Note:
Step 7.2.2.8 may be N/A'd if the FULL OPEN indicator was used to verify valve position in step 7.2.2.7.

7.	**Procedure Step:**	7.2.2. Check the following occurs: 8. Only the FULL OPEN indicator light is on.
	Standard	Applicant verified the FULL OPEN indicator is on and the CLOSED indicator is off.
	Cue	
	Notes	The applicant may NA this step if this method was used in step 7.2.2.7
	Results	SAT ☐ UNSAT ☐

8.	***Procedure Step:**	7.2.3 Release the TEST BPV 1 pushbutton.
	Standard	Applicant released the TEST BPV 1 pushbutton.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

9.	**Procedure Step:**	7.2.4. Check the following occurs: 1. Small negative current change on C85AM4, 1 BYPASS VALVE SERVO CURRENT meter. 2. BPV 1 is traveling smoothly in the close direction as indicated on C85AM5, 1 BYPASS VALVE POSITION meter.
	Standard	Applicant located/identified the C85AM4 meter, and verified a small negative current is present. Applicant located/identified the C85AM5 meter, and verified that the #1 BPV is travelling in the closed direction.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

10.	**Procedure Step:**	7.2.4. Check the following occurs: 3. Verify BPV 1 is full closed by one of the following: • C85AM5, BYPASS VALVE POSITION. • ERIS point C85EA012, BYPASS VALVE 1 POSITION. • Only the CLOSED indicator light is on.
	Standard	Applicant used at least one of the three closed indications to verify that the #1 BPV was closed.
	Cue	
	Notes	If ERIS point is used, a position of 0.0 indicates full closed.
	Results	SAT ☐ UNSAT ☐

Procedure Note:

Step 7.2.4.4 may be N/A'd if the CLOSED indicator was used to verify valve position in step 7.2.4.3.

11.	**Procedure Step:**	7.2.4. Check the following occurs: 4. Only the CLOSED indicator light is on.
	Standard	Applicant verified the CLOSED indicator is on and the OPEN indicator is off.
	Cue	
	Notes	The applicant may NA this step if this method was used in step 7.2.4.3
	Results	SAT ☐ UNSAT ☐

12.	**Procedure Step:**	7.2.4. Check the following occurs: 5. Annunciator P680-07A-A07, TURBINE BYPASS VALVE OPEN clears. 6. The TEST BPV 1 light goes off. 7. The READY light comes on.
	Standard	Applicant verified the alarm cleared as indicated by a slow flashing. Applicant verified the TEST BPV 1 light is off. Applicant verified the READY light is on.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

Examiner Note: Section 7.3 for BPV #2 is N/A.

7.4 Restoration

13.	***Procedure Step:**	7.4.1 In the BYPASS VALVE TEST STATUS group, depress the OFF pushbutton.
	Standard	Applicant depressed the OFF pushbutton.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

Terminating Cue: Bypass Valve #1 is closed ; STP-509-0101, Main Turbine Bypass System Valve Cycle Test, Section 7.2, Bypass Valve 1 Test, is complete.

This completes this JPM.

STOP TIME: _____

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

INITIAL CONDITIONS:

The reactor is at ≈ 70% power during a plant startup.
No Rod withdrawal is scheduled during the performance of this STP.
Both Turbine Bypass Valves (BPVs) are closed.

INITIATING CUE:

The CRS has directed you as the Unit Operator to perform STP-509-0101, Main Turbine Bypass System Valve Cycle Test, for Bypass Valve 1 ONLY.

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
SRO ☒ RO ☒

ALTERNATE PATH ☒

TITLE: **Reduce SDC to only RHR-A – w/ overload pre-trip alarm**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**NA**	Actual Time (min):	**NA**
PERFORMANCE TIME:	Average Time (min):	15	Actual Time (min):	

JPM RESULTS*: (Circle one) * SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

X	Perform
	Simulate

EVALUATION LOCATION:

	Plant
X	Simulator
	Control Room

Prepared: Dave Bergstrom **Date:** September 4, 2014

Reviewed: Steve Carter **Date:** October 2, 2014
(Operations Representative)

Approved: Joey Clark **Date:** October 18, 2014
(Facility Reviewer)

EXAMINER INFO SHEET

Task Standard: RHR-B is secured from SDC and RHR-A motor amps restored to normal.

Synopsis: With the plant shutdown and two loops of Shutdown Cooling in service, the applicant is tasked with securing RHR-B loop of SDC. When the applicant reaches a particular step, an automatic trigger will cause a malfunction that makes the motor amps of the RHR-A pump to rise and an alarm to be activated. The applicant will then need to refer to the ARP for that alarm and take action to reduce the motor amps.

NOTE: If in the Plant or the Control Room, **Caution** the operator NOT to MANIPULATE the controls, but to make clear what they would do if this were not a simulated situation.

1) **Read to the operator**:

"I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied. Inform me when you have completed the task.

2) Initiating Cues:

The CRS has directed you to secure RHR-B from Shutdown Cooling and to place RHR-B in standby per SOP-0031 beginning at step 5.6.11.

3) Initial Conditions:

RHR-A and RHR-B are in SDC.

4) Solicit and answer any questions the operator may have.

DATA SHEET

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Reduce SDC to only RHR-A – w/ overload pre-trip alarm	205022001001	205000 A1.07 205000 A3.03 205000 A4.09	2.2 / 2.1 3.5 / 3.3 3.1 / 3.1

Reason for Revision

REFERENCES:
SOP-0031, RHR, Rev 321
ARP-601-20A-A04

APPLICABLE OBJECTIVES
RLP-STM-0204, Obj 8, 10

REQUIRED MATERIALS:
Simulator Copy SOP-31 and ARP

SAFETY FUNCTION:
2

SIMULATOR CONDITIONS & SETUP:

1. IC # 247
2. Rx Power: Shutdown with RHR-A & B in SDC lineup
3. T1: malfunction p601_20a:a_4 fail on, delay 18 sec
   override AO_E12-C002A 109 amps, ramp 16 seconds
4. Event 1: FWS-7B Open switch zdi6(216) = 1
5. T2: malfunction p601_20a:a_4 fail on, delete 5 seconds
   override AO_E12-C002A 97 amps, ramp 18 seconds
6. Event 2: rhfrhr(1) < 675 represents RHR Loop Flow of approx. 5000 gpm

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: RHR-B is secured from SDC and RHR-A motor amps restored to normal.

PERFORMANCE:

START TIME: _____

SOP-0031, RHR Section 5.6, Shifting Divisions of Shutdown Cooling (Both Loops Operating)

5.6.11 Secure RHR A(B) from SDC as follows:

1.	**Procedure Step:**	1. Simultaneously perform the following while maintaining flow between 1500 gpm and 2000 gpm to prevent automatic opening of E12-F064A(B), RHR PUMP A(B) MIN FLOW TO SUP PL: • Throttle closed E12-F003B, RHR B HX OUTLET VALVE • Throttle open E12-F0048B, RHR B HX BYPASS VALVE
	Standard	Applicant simultaneously closed the HX Outlet valve while opening the HX Bypass valve until the HX outlet valve was fully closed as indicated by the green light on and the red light off. Applicant held the control switch for the HX outlet valve for 5 seconds after the green light comes on to ensure valve closure.
	Cue	
	Notes	System flow is read on meter E12-R603B, RHR PMP B LOOP FLOW.
	Results	SAT ☐ UNSAT ☐

2.	***Procedure Step:**	2. WHEN E12-F003B is full closed, THEN stop E12-C002B, RHR PUMP B
	Standard	Applicant rotated the RHR-B pump breaker switch counter-clockwise and observed the green light on and the red light off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	***Procedure Step:**	3. Close the following: • E12-F006B, RHR PUMP B SDC SUCTION VALVE
	Standard	Applicant closed the valve by rotating the handswitch to the close position and observing the green light on and the red light off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	***Procedure Step:**	3. Close the following: • E12-F053B, RHR PUMP B SDC INJECTION VALVE
	Standard	Applicant closed the valve by rotating the handswitch to the close position and observing the green light on and the red light off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	3. Close the following: • E12-F037B, RHR B TO UPPER POOL FPC ASSIST
	Standard	Applicant verified the valve closed by observing the green light on and the red light off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

6.	**Procedure Step:**	3. Close the following: • E12-F048B, RHR B HX BYPASS VALVE
	Standard	Applicant closed the valve by rotating the handswitch to the close position and observing the green light on and the red light off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

7.	**Procedure Step:**	3. Close the following: • IF FWS-MOV7B, B FW OUTBD ISOL is closed, THEN open FWS-MOV7B
	Standard	Applicant opened the valve by depressing the OPEN pushbutton and observing the red light on and the green light off.
	Cue	
	Notes	The malfunction is automatically triggered 12 seconds after the Open pushbutton is depressed.
	Results	SAT ☐ UNSAT ☐

ALTERNATE PATH:

Applicant transitions to ARP-601-20A-A04, RHR Pump A Overload Pre-Trip Warning

3	**Procedure Step:**	1. Verify the following: • RHR Pump A discharge flow is less than 5950 gpm. • E12-F064A, RHR Pump A Min Flow to Supp Pool is closed
	Standard	Applicant reports the alarm to the CRS. {cue} Applicant located the meter and observed that pump flow is less than 5950. Applicant verified the min flow valve closed by observing the green light on and the red light off.
	Cue	As the CRS, accept the report of the pre-trip warning on RHR-A. If asked, as the CRS, say that RHR-B is no longer available.
	Notes	
	Results	SAT ☐ UNSAT ☐

4	***Procedure Step:**	2. Reduce pump motor amps by throttling closed any of the following valves: • E12-F003A, RHR A HX OUTLET VALVE • E12-F048A, RHR A HX BYPASS VALVE
	Standard	Applicant throttled either the F003 or the F048 valve closed by intermittently rotating the control switch counterclockwise, until 601-20A-A04, RHR Pump A Overload Pre-Trip Warning clears.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

Terminating Cue: RHR-B is secured from SDC and RHR-A motor amps restored to normal.

This completes this JPM.

STOP TIME: _____

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

INITIAL CONDITIONS:

RHR-A and RHR-B are in SDC.

INITIATING CUE:

The CRS has directed you to secure RHR-B from Shutdown Cooling and to place RHR-B in standby per SOP-0031 beginning at step 5.6.11.

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
SRO ☒ RO ☒

ALTERNATE PATH ☒

TITLE: **Secure from Containment High Volume Purge –w/ trip of Decay Heat Fan**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**NA**	Actual Time (min):	**NA**
PERFORMANCE TIME:	Average Time (min):	15	Actual Time (min):	

JPM RESULTS*: (Circle one) SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

X	Perform
	Simulate

EVALUATION LOCATION:

	Plant
X	Simulator
	Control Room

Prepared:	Dave Bergstrom	**Date:**	September 19, 2014
Reviewed:	Steve Carter (Operations Representative)	**Date:**	October 2, 2014
Approved:	Joey Clark (Facility Reviewer)	**Date:**	October 18, 2014

EXAMINER INFO SHEET

TASK STANDARD: Containment High Volume Purge is secured and Standby Gas Treatment is in service following response to a trip of the Decay Heat Removal Fan.

SYNOPSIS: The plant had experienced elevated containment radiation levels and placed containment high volume purge in service. The cause has been remedied and the elevated rad levels have been reduced. This task will have the applicant secure containment high volume purge using SOP-0059, but due to a failure of the decay heat removal fan, the applicant will be required to re-start the Standby Gas Treatment Train.

NOTE: If in the Plant or the Control Room, **Caution** the operator NOT to MANIPULATE the controls, but to make clear what they would do if this were not a simulated situation.

1) Read to the operator:

> "I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied.
> Inform me when you have completed the task.

2) Initiating Cues:

> The CRS has directed you to secure from containment high volume purge using SOP-0059, Containment HVAC System, starting at step 5.5.8.

3) Initial Conditions:

> Containment radiation levels have been reduced by performing a high volume purge on containment per SOP-0059, Containment HVAC System.

DATA SHEET

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Secure from Containment High Volume Purge –w/ trip of Decay Heat Fan	222023001001	295034 EA1.03	4.0 / 3.9

REFERENCES:

SOP-0059, Containment HVAC, Rev 034
ARP-863-73A-C03, Rev 8
SOP-0043, Standby Gas Treatment, Rev 17

APPLICABLE OBJECTIVES:

RLP-STM-0403 Objective 2, 12

REQUIRED MATERIALS:

Simulator copies of:
- SOP-0059
- ARP-863-73A-C03
- SOP-0043

SAFETY FUNCTION:

__9__

SIMULATOR CONDITIONS & SETUP:

1. IC # 247
2. Required Power: no requirement
3. High Volume purge in progress
4. T3 is to trip the decay heat fan with a delay of 5 seconds
   a) Malf: p863_73a:c_3 fail on
      Over: DI_GTS-FN2A stop
      LO_GTS-FN2A-G off
      LO_GTS-B3-A on
      Malf: p863_73a:d_6 on
5. Event 3: zdi2(458) = 1 (HVR-AOD 162 switch to close)

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: Containment High Volume Purge is secured and Standby Gas Treatment is in service following response to a trip of the Decay Heat Removal Fan.

PERFORMANCE:

START TIME: _____

SOP-0059, Section 5.5, Containment High Volume Purge.

Examiner note: Applicant may make a plant announcement about securing purge.

1.	**Procedure Step:**	5.5.8. WHEN Containment Purge is no longer required, THEN place HVR-FN8, HIGH VOL CONTMT/DW PURGE to STOP and verify HVR-AOD 244, HIGH VOL FAN DISCH closes.
	Standard	Applicant stopped Fan 8 by rotating the switch counterclockwise to STOP and observing the green light on and red light off. Applicant verified HVR-AOD 244 damper closed by observing the green light on and red light off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	5.5.9. Depress the GTS-FN1A, SGT EXH FAN A STOP Pushbutton and verify the following dampers close: • GTS-AOD1A, SGT FILTER A SUCT ISOL • GTS-AOD3A, SGT EXH FAN A DISCH
	Standard	Applicant stopped Standby Gas Train A by depressing the STOP pushbutton and observing the green light on and red light off. Applicant verified AOD 1A and 3A dampers closed by observing the green light on and red light off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	5.5.10. Verify proper Filter Train Decay Heat Removal operation by observing the following: • GTS-FN2A, SGT A DECAY HEAT REMOVAL running. • GTS-AOD4A, DECAY HEAT REMOVAL INTK is open.
	Standard	Applicant verified the Decay Heat Removal fan running by observing the red lights on and green lights off. Applicant verified the intake damper open by observing the red lights on and green lights off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	**Procedure Step:**	5.5.11. Close the following dampers and valves: • HVR-AOV165, CONTMT SPLY OUTBD ISOL • HVR-AOV123, CONTMT SPLY INBD ISOL • HVR-AOD124, CONTMT PURGE SPLY ISOL
	Standard	Applicant closed the two valves and the one damper by locating and turning each switch to close and observing the green lights on and red lights off for each.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	5.5.11. Close the following dampers and valves: • HVR-AOD127, CONTMT PURGE RTN ISOL • HVR-AOV128, CONTMT RTN INBD ISOL • HVR-AOV166, CONTMT RTN OUTBD ISOL
	Standard	Applicant closed the 2 valves and one damper by locating and turning each switch to open and observing the green lights on and red lights off for each.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

PROCEDURE NOTE
HVR-AOD245(AOD162) is interlocked with the containment return valve, HVR-AOV128(AOV166). The control switch for the purge to SGT dampers must be taken to CLOSE to reset the logic, even when the damper is already closed.

6.	**Procedure Step:**	5.5.12. Reset the logic by momentarily placing the control switches in CLOSE and then to the Mid position: • HVR-AOD245, CONTMT PURGE TO SGT • HVR-AOD162, CONTMT PURGE TO SGT
	Standard	Applicant turned the control switch for AOD 245 to STOP and then back to mid position. Applicant turned the control switch for AOD 162 to STOP and then back to mid position.
	Cue	
	Notes	Placing AOD 162 to close will automatically initiate the malfunction.
	Results	SAT ☐ UNSAT ☐

ALTERNATE PATH:

ANNUNCIATOR, P863-73A-C03 alarms.

	Procedure Step:	Respond to ANNUNCIATOR, P863-73A-C03, Div 1 SGT DECAY HEAT REMOVAL SYS INOPERATIVE. 1. IF GTS-AOD4A fails closed, THEN verify GTS-FN2A is stopped
	Standard	Applicant recognizes, reports, and responds to the alarm: Applicant recognizes that GTS-FN2A has neither green nor red lights lit. Applicant dispatches operator to investigate.
	Cue	As CRS, accept report of fan trip. As Building Operator, respond to call to investigate decay heat fan trip. As building operator, after being dispatched, report back that the decay heat fan breaker is closed.
	Notes	

7.	**Procedure Step:**	2. IF SGT A Decay Heat Removal System was operating, THEN monitor temperature locally on GTS-TIS14A, local indication or ERIS Point GTSTY357.
	Standard	{cue} Applicant contacts the building operator for local temperature indication of the charcoal bed.
	Cue	When the applicant enters the computer point, tell the applicant that the ERIS point reading is bad data. When called, as the building operator, report that local temperature is reading 88 degrees.
	Notes	
	Results	SAT ☐ UNSAT ☐

8.	**Procedure Step:**	3. IF temperature continues to increase, THEN start the A SGT Train per SOP-0043, Standby Gas Treatment System.
	Standard	{cue} Applicant recognizes rising trend on charcoal bed temperature and transitions to SOP-0043.
	Cue	When called, as the building operator, report that local temperature is reading 90 degrees.
	Notes	
	Results	SAT ☐ UNSAT ☐

SOP-0043, Section 4.1 Manual Startup

	Procedure Step:	4.1.1 IF Standby Gas will be started for testing… 4.1.2 IF both Standby Gas trains will be operated simultaneously…
	Standard	NA
	Notes	This is a place keeper

9.	***Procedure Step:**	4.1.3 Select one of the following areas for the GTS System to draw air and open the respective dampers: 1. Aux Building/Containment Annulus • HVR-AOD18A, AUX BLDG to GTS ISOLATION • HVR-AOD22A, ANNULUS MIXING OUT DMPR to GTS 2. Outside Air Supply • HVR-AOD263, SGT UPSTREAM SPLY ISOL • HVR-AOD264, SGT DNSTREAM SPLY ISOL
	Standard	Applicant opened the two selected dampers by turning each switch to open and observing the red lights on and green lights off for each.
	Cue	As CRS, if asked, tell the applicant to use outside air.
	Notes	
	Results	SAT ☐ UNSAT ☐

Examiner Note, If the applicant chooses to start Standby Gas on the Aux Building, he may call security to take an aux building door offline.

PROCEDURE NOTE
The Standby Gas Treatment Exhaust Fan does not receive a start signal until after the suction damper is full open, therefore, the start switch must remain depressed until GTS-AOD1A, SGT FILTER A SUCT ISOL is full open.

Examiner Note: Applicant will make plant announcement about starting Standby Gas Treatment.

10.	***Procedure Step:**	4.1.4 Start GTS-FN1A, SGT EXH FAN A by depressing the START Pushbutton and verify the following: 1. GTS-AOD1A, SGT FILTER A SUCT ISOL opens 2. GTS-FN1A, SGT EXH FAN A starts 3. GTS-AOD3A, SGT EXH FAN A DISCH opens
	Standard	Applicant depressed and held the Start pushbutton until the AOD1A damper was full open and observed the red lights on and green lights off for each.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

Terminating Cue — Containment High Volume Purge is secured and Standby Gas Treatment is in service following response to a trip of the Decay Heat Removal Fan.

STOP TIME: _____

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

INITIAL CONDITIONS:

Containment radiation levels have been reduced by performing a high volume purge on containment per SOP-0059, Containment HVAC System.

INITIATING CUE:

The CRS has directed you to secure from containment high volume purge using SOP-0059, Containment HVAC System, starting at step 5.5.8.

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
SRO ☒ RO ☒

ALTERNATE PATH ☐

TITLE: **Start the Suppression Pool Cooling and Cleanup System**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**NA**	Actual Time (min):	**NA**
PERFORMANCE TIME:	Average Time (min):	10	Actual Time (min):	

JPM RESULTS*: (Circle one) SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

X	Perform
	Simulate

EVALUATION LOCATION:

	Plant
X	Simulator
	Control Room

Prepared:	Dave Bergstrom	**Date:**	September 20, 2014
Reviewed:	Steve Carter (Operations Representative)	**Date:**	October 2, 2014
Approved:	Joey Clark (Facility Reviewer)	**Date:**	October 18, 2014

EXAMINER INFO SHEET

TASK STANDARD: The Suppression Pool Cooling and Cleanup System has been started up using SOP-0140, section 5.2.

SYNOPSIS: The plant is performing a startup per GOP-0001. The reactor is at 50% power. This task has the applicant start the Suppression Pool Cooling and Cleanup System using SOP-0140, Suppression Pool Cleanup and Alternate Decay Heat Removal section 5.2.

NOTE: If in the Plant or the Control Room, **Caution** the operator NOT to MANIPULATE the controls, but to make clear what they would do if this were not a simulated situation.

1) Read to the operator:

> "I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied.
> Inform me when you have completed the task.

2) Initiating Cues:

> The CRS has directed you to start the Suppression Pool Cooling and Cleanup System using pump A in accordance with SOP-0140 Section 5.2.

3) Initial Conditions:

> The plant is in Mode 1, operating at 50% power while performing a plant startup. SPC/ADHR was secured after a loss of RPS bus using section 7.1 of SOP-0140, Suppression Pool Cleanup and Alternate Decay Heat Removal.
>
> Suppression Pool Cooling is not required; the SPC Demin will be placed in service at a later time.

DATA SHEET

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Start the Suppression Pool Cooling and Cleanup System	220004001001	209002 A2.14 209001 A2.10	3.0 / 3.3 3.1 / 3.4

REFERENCES:
SOP-0140, Rev 28, Section 5.2

APPLICABLE OBJECTIVES:
RLP-STM-0656 Objective 7, 11

REQUIRED MATERIALS:
SOP-0059, Rev 034, Section 5.14
(Simulator copy)

SAFETY FUNCTION:
5

SIMULATOR CONDITIONS & SETUP:

1. IC # 257
2. Required Power: Any
3.

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: The Suppression Pool Cooling and Cleanup System has been started up using SOP-0140, section 5.2.

PERFORMANCE:

START TIME: _____

PROCEDURE NOTE:
The instrumentation and controls in this section are located at H13-P601 unless otherwise noted.

1.	**Procedure Step:**	5.2.1 Notify Radiation Protection that system startup is in progress.
	Standard	NA
	Cue	As the Rad Protection Department, accept report .
	Notes	

2.	**Procedure Step:**	5.2.2 Verify E12-F105, RHR PUMP C SUP PL SUCTION VALVE is open
	Standard	Applicant located/identified and verified the suppression pool suction valve for RHR-P1C open by checking the RED indicating light ON and GREEN indicating light OFF.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	5.2.3 Verify the following keyswitches are in NORMAL:
	Standard	NA
	Cue	When asked, report that the back panel switches are in NORMAL.
	Notes	

4.	**Procedure Step:**	5.2.4 IF the plant is in Mode 4, 5, or the reactor is defueled…
	Standard	NA
	Cue	
	Notes	This step is NA

5.	**Procedure Step:**	5.2.5 At AB, 95 el, Crescent Area, close RHS-V3022, RHR C TEST RETURN TO SP MANUAL ISOL VLV. 5.2.6 At AB, 70 ft el, Racquetball Room, perform the following:
	Standard	NA
	Cue	As operator, report that steps 5.2.5 and 5.2.6 are complete.
	Notes	

PROCEDURE <u>CAUTION</u>:
Maximum SPC-E1, SPC HEAT EXCHANGER service water flow is 2250 gpm.

6.	**Procedure Step:**	5.2.7 <u>IF</u> Suppression Pool Cooling is required…
	Standard	NA
	Cue	
	Notes	*This step is NA in accordance with the Initial Conditions.*

PROCEDURE <u>NOTE</u>:
If SPC was filled to CNS pressure per section 5.1, opening RHS-AOV62, and RHS-AOV63 can cause momentary P618-E12-ESN653C gross fail annunciation on H13-P601, Insert 17.

7.	***Procedure Step:**	5.2.8 Open the following valves: 1. RHS-AOV63, SPC SUCTION VALVE 2. RHS-AOV62, SPC SUCTION VALVE 3. RHS-AOV64, SPC DISCH VALVE
	Standard	Applicant located/identified and opened RHS-AOV63, RHS-AOV62, and RHS-AOV64 by placing their respective control switches in the OPEN position and by checking the RED indicating lights ON and GREEN indicating lights OFF.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

8.	***Procedure Step:**	5.2.9 Open E12-MOV F021, RHR PUMP C TEST RTN TO SUP PL
	Standard	Applicant located/identified and opened E12-MOV F021 by placing the control switch in the OPEN position and checking the GREEN indicating light OFF and the RED indicating light ON.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

9.	**Procedure Step:**	5.2.10 At RW, 136 ft el, SPC-PNL200, open the following valves: 5.2.11 WHEN at least 5 seconds have elapsed, THEN close the valves:
	Standard	NA
	Cue	As operator, report that steps 5.2.10 and 5.2.11 are complete.
	Notes	

10.	**Procedure Step:**	5.2.12 IF Annunciator P601-20A-F02, SPC SYSTEM NOT FULL, alarms…
	Standard	NA
	Cue	
	Notes	*This step is NA: The Alarm did not come in during validation.*

11.	**Procedure Step:**	5.2.13 IF SPC-P1A, SPC Pump A had auto tripped, THEN reset the trip as follows:
	Standard	NA
	Cue	
	Notes	*According to the initial conditions, the system was secured in accordance with procedure.*

12.	***Procedure Step:**	5.2.14 Start SPC-P1A, SPC PUMP A
	Standard	Applicant located/identified and turned the control switch for SPC Pump A and checked the GREEN indicating light OFF and the RED indicating light ON.
	Cue	
	Notes	Applicant may make a plant announcement about starting pump.
	Results	SAT ☐ UNSAT ☐

13.	**Procedure Step:**	5.2.15 Check open SPC-AOV25, SPC PUMP MINIMUM FLOW VALVE, as indicated by flow indication on SPC-FI 32, SPC Total Flow
	Standard	Applicant located/identified and verified flow on SPC-FI 32.
	Cue	
	Notes	This meter is located on the vertical section of the insert to the right of the SPC controls (Insert 17)
	Results	SAT ☐ UNSAT ☐

NOTE

SPC System flow greater than 1500 gpm for one minute closes SPC-AOV25, SPC PUMP MINIMUM FLOW VALVE. SPC-AOV25 remains closed until the SPC Pump is stopped.

After SPC-AOV25 closes, SPC System flow less than 600 gpm for 30 seconds trips the running SPC Pump.

SPC System flow must exceed 1500 gpm to initialize the 600 gpm low flow trip logic.

SPC System flow greater than 2500 gpm trips the operating SPC Pump.

14.	***Procedure Step:**	5.2.16 Throttle open SPC-AOV20, SPC FILTER DEMIN BYPASS VALVE to greater than 1500 gpm and less than or equal to 2250 gpm as indicated on SPC-FI 32, SPC TOTAL FLOW.
	Standard	Applicant located/identified and throttled open SPC-AOV20 by placing the control switch in the OPEN position until flow indicated between 1500 and 2250 gpm.
	Cue	
	Notes	This is a spring return throttle type controller.
	Results	SAT ☐ UNSAT ☐

15.	**Procedure Step:**	5.2.17 WHEN SPC-AOV25 closes, as indicated by a drop in flow on SPC-FI 32, SPC TOTAL FLOW, THEN adjust SPC-AOV20 to obtain system flow greater than 1500 gpm and less than or equal to 2250 gpm as indicated on SPC-FI 32, SPC TOTAL FLOW.
	Standard	After waiting for the flow indication to drop, the applicant located/identified and throttled open SPC-AOV20 by placing the control switch in the OPEN position until flow indicated between 1500 and 2250 gpm.
	Cue	
	Notes	The SPC Min Flow Valve closes after about one minute; this will drop flow, but not out of the band if the applicant had flow toward the top of the directed band.
	Results	SAT ☐ UNSAT ☐

Terminating Cue: The Suppression Pool Cooling and Cleanup System has been started up using SOP-0140, section 5.2.

This completes this JPM.

STOP TIME: _____

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

INITIAL CONDITIONS:

The plant is in Mode 1, operating at 50% power while performing a plant startup. SPC/ADHR was secured after a loss of RPS bus using section 7.1 of SOP-0140, Suppression Pool Cleanup and Alternate Decay Heat Removal.

Suppression Pool Cooling is not required; the SPC Demin will be placed in service at a later time.

INITIATING CUE:

The CRS has directed you to start the Suppression Pool Cooling and Cleanup System using pump A in accordance with SOP-0140 Section 5.2.

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
SRO ☒ RO ☒

ALTERNATE PATH ☐

TITLE: **Shed DC Loads for Station Blackout**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**30**	Actual Time (min):	
PERFORMANCE TIME:	Average Time (min):	10	Actual Time (min):	**NA**

JPM RESULTS*: (Circle one) * SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

	Perform
X	Simulate

EVALUATION LOCATION:

	Plant
	Simulator
X	Control Room

Prepared:	Dave Bergstrom	**Date:**	September 9, 2013
Reviewed:	Steve Carter (Operations Representative)	**Date:**	October 2, 2014
Approved:	Joey Clark (Facility Reviewer)	**Date:**	October 18, 2014

EXAMINER INFO SHEET

Task Standard: Non-essential loads have been removed per AOP-0050, Attachment 3 in less than 30 minutes.

Synopsis: This time critical task will remove DC loads from the station batteries in order to reduce heat load in the control room. Without operator action, during a station blackout, Control Room temperatures can reach greater than 120˚F in less than 4 hours.

NOTE:
If in the Plant or the Control Room,
Caution the operator **NOT** to MANIPULATE the controls,
but to make clear what they would do if this were not a simulated situation.

1) **Read to the operator**:
"I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied. Inform me when you have completed the task."

2) Initial Conditions:
A station blackout has occurred. Restoration time is unknown.

3) Initiating Cues:
The CRS has directed you to shed DC loads in accordance with Attachment 3 of AOP-0050, Station Blackout.

This is a time critical JPM.

4) Solicit and answer any questions the operator may have.

DATA SHEET

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Shed DC Loads for Station Blackout	400067004001	263000 A4.01 295003 AA1.04	3.3 / 3.5 3.6 / 3.7

REFERENCES:
AOP-0050, Station Blackout, Rev 49

APPLICABLE OBJECTIVES
RLP-HLO-0541, Obj 3, 7

REQUIRED MATERIALS:
AOP-0050, Rev 49 Attach 3

SAFETY FUNCTION:
9

SIMULATOR CONDITIONS & SETUP:

1. NA – This is a Control Room JPM.

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: Non-essential loads have been removed per AOP-0050, Attachment 3 in less than 30 minutes.

PERFORMANCE:

START TIME: _____

PROCEDURE NOTE

Performance of this procedure disables EHC Turbine Control and the Plant Process Computer.

The following disconnects are located on the Control Room south wall.

1.	***Procedure Step:**	1 Open the following disconnects on panel VBN-PNL01B1: • Disconnect 1, H13-P821, TURBINE GEN, EHC SYSTEM CABINET • Disconnect 3, H13-P869/P870, SST-AR40, 89, 194, 195, MSS-FR31, GMC-CR106 • Disconnect 12, H13-P601, SPC MUX &, TEMP RECORDER E12-R601
	Standard	Applicant located and moved the three breaker handles to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

PROCEDURE CAUTION

Loads necessary for operation during a station blackout are powered from VBN-PNL02, Disconnects 19, 21, 23, 25, and 26.

Do not open VBN-PNL02, Disconnects 19, 21, 23, 25, and 26.

2.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 1, H13-P721D, ERIS NETWORK, COMMUNICATION EQUIPMENT
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 2, C91-P608, PMS Computer, CMS/PPX
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 3, C91-P600, PMS Computer, Central System Unit
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

5.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 4, C91-P603, PMS Computer Large Core Storage
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

6.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 5, C91-P612, PMS Computer Display, Generator Cabinet
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

7.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 6, C91-P620, PMS Computer, BOP/NSSS Digital Unit
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

8.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 7, C91-P625, PMS Computer, BOP/NSSS Digital Unit
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

9.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 8, C91-P621, PMS Computer BOP, Digital Unit & SPC-BNK1
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

10.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 9, C91-P624, PMS Computer, BOP Digital Unit
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

11.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 10, C91-P622, PMS Computer, BOP Digital Unit
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

12.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 11, C91-P623, PMS Computer, BOP Digital Unit
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

13.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 12, C91-P630/P631, PMS Computer, Printers
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

14.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 13, C91-P613, PMS Computer, NSSS Analog Unit
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

15.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 14, C95-P604, Unit Operator Table, ERIS Terminals
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

16.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 15, C91-P616, PMS Computer, BOP Analog Unit
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

17.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 16, C91-P615, PMS Computer, BOP Analog Unit
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

18.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 17, C91-P614, PMS Computer, BOP Analog Unit
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

19.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 18, C91-P642, PMS Computer Results, Central Console
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

20.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 20, C91-P632/P633, PMS Computer, Printers
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	Note: this is the first disconnect not in order – procedure skips disconnect 19
	Results	SAT ☐ UNSAT ☐

21.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 22, C91-P650, PMS Computer BOP, Digital Unit & SWC-BNK4
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

22.	***Procedure Step:**	2 Open the following disconnects on panel VBN-PNL02: • Disconnect 24, H13-P954, Loose Parts Monitor, & H13-P808/83A/F07, F08
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

23.	***Procedure Step:**	3 Open the following disconnects on panel VBN-PNL01A1: • Disconnect 17, H13-P808, SPI-REC102 & SWC, Harris Panel
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

24.	***Procedure Step:**	3 Open the following disconnects on panel VBN-PNL01A1: • Disconnect 21, C91-P642 C91-PM5 & PM5A, Core Monitor, System Recept
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

25.	**Procedure Step:**	3 Open the following disconnects on panel VBN-PNL01A1: • Disconnect 22, C91-P631 C91-PM6 & PM6A, Core Monitor, System Recept
	Standard	Applicant located and moved the breaker handle to the OFF position.
	Cue	
	Notes	Reminder – This is a TIME CRITICAL Task.
	Results	SAT ☐ UNSAT ☐

Terminating Cue: Non-essential loads have been removed per AOP-0050, Attachment 3 in less than 30 minutes.

This completes this JPM.

STOP TIME: _____ **(Check time against the Time Critical Limit)**

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

INITIAL CONDITIONS:

A station blackout has occurred. Restoration time is unknown.

INITIATING CUE:

The CRS has directed you to shed DC loads in accordance with Attachment 3 of AOP-0050, Station Blackout.

This is a time critical JPM.

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
SRO ☒ RO ☒

ALTERNATE PATH ☐

TITLE: **Bypass a Control Rod in RACS (STP-500-0705)**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**NA**	Actual Time (min):	**NA**
PERFORMANCE TIME:	Average Time (min):	15	Actual Time (min):	

JPM RESULTS*: (Circle one) * SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

	Perform
X	Simulate

EVALUATION LOCATION:

	Plant
	Simulator
X	Control Room

Prepared: Dave Bergstrom **Date:** September 10, 2014

Reviewed: Steve Carter **Date:** October 2, 2014
(Operations Representative)

Approved: Joey Clark **Date:** October 18, 2014
(Facility Reviewer)

EXAMINER INFO SHEET

Task Standard: Control Rod 16-25 has been bypassed in the RACS Cabinets.

Synopsis: This task will bypass a control rod to allow movement of the rod without position indication.

NOTE:
If in the Plant or the Control Room,
Caution the operator **NOT** to MANIPULATE the controls,
but to make clear what they would do if this were not a simulated situation.

1) **Read to the operator**:

"I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied. Inform me when you have completed the task."

2) Initial Conditions:

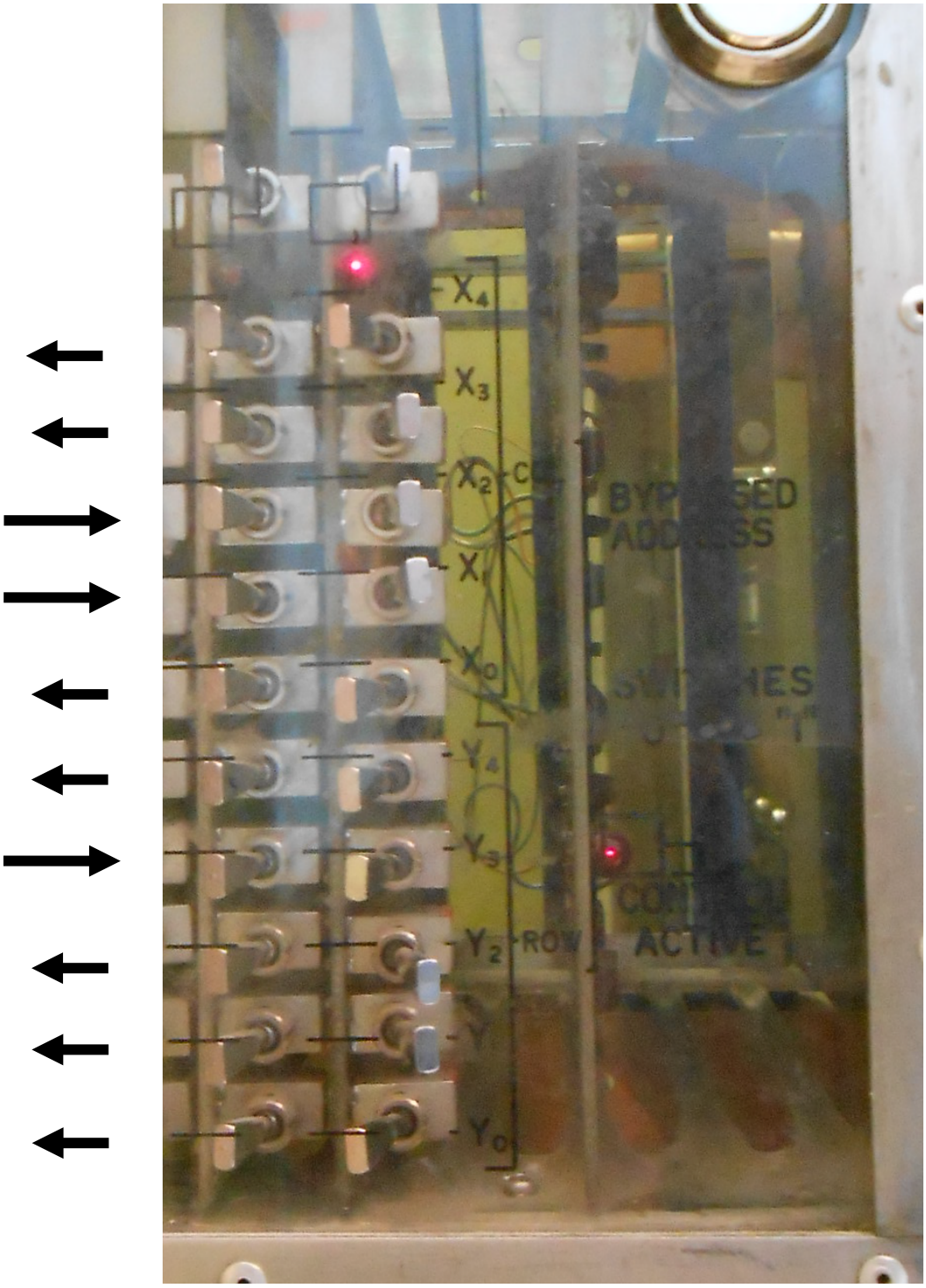
The plant is performing a startup. Thermal power is less than 10% of rated. Control rod 16-25 is in the correct position when both position reed switches fail. In order to clear the rod block and continue rod movement Rod 16-25 will have to be bypassed in RACS.

3) Initiating Cues:

In order to meet Technical Specification 3.1.3 requirements, the CRS directs you to bypass control rod 16-25 in accordance with STP-500-0705, Bypassing Control Rods in RACS.

4) Solicit and answer any questions the operator may have.

ANSWER KEY



DATA SHEET

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Bypass a Control Rod in RACS	214003004001	201005 K6.02 201005 A2.02	3.2 / 3.3 2.8 / 3.2

REFERENCES:
STP-500-0705, Bypassing Control Rods in RACS, Rev 16
SOP-0071, Rod Control & Information System, Rev 29

APPLICABLE OBJECTIVES
RLP-STM-0503, Obj 18, 21

REQUIRED MATERIALS:
Marked up copy of STP-500-0705, Rev 16
Completed section 6 with exception of applicant signing as second performer in Sect 6.2.
SOP-0071, Rev 29
Handout with picture of RACS Cabinet Ident Select Switches

SAFETY FUNCTION:
7

SIMULATOR CONDITIONS & SETUP:

1. NA – This is a Control Room JPM.

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: Control Rod 16-25 has been bypassed in the RACS Cabinets.

PERFORMANCE:

START TIME: _____

	Procedure Step:	4 Required Equipment 4.1 Key Number 1161, located on the Reactor Operator key ring in the Unit Operator desk, will be needed to access the Rod Bypass file.
	Standard	NA
	Cue	Tell the applicant that the key will not be used on this JPM.
	Notes	

	Procedure Step:	6 Prerequisites 6.2 Each performer indicates that they have read and understand this procedure by completing the following:
	Standard	NA - Applicant should sign in section 6.2
	Cue	
	Notes	

	Procedure Step:	7.1 Perform Attachment 2, Control Rods to be Bypassed for each Control Rod to be bypassed.
	Standard	NA
	Cue	
	Notes	This step is a placekeeper.

Attachment 2, Control Rods to be Bypassed

	Procedure Step:	1.1 Perform the matrix below for each control rod to be bypassed.
	Standard	NA
	Cue	
	Notes	This step is a placekeeper.

1.	**Procedure Step:**	Matrix Column 1 Row 1 Record the Control Rod being Bypasses.
	Standard	Applicant recorded rod 16-25 on Attachment 2 Matrix (p.2 of 2).
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	Matrix Column 1 Row 2 Step 1.2 complete 1.2 Prior to control rod movement, verify the movement of the control rod is per one of the following authorized movements • Rod movement per LCOs 3.1.3 bypassing of an inoperable control rod or 3.1.6 Action A.1 or B.1, movement to restore BPWS.
	Standard	Applicant identified first bullet of step 1.2 as applicable (from initiating cues), and initialed step.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

	Procedure Step:	Matrix Column 1 Row 3 Step 1.2 Ind. Verified
	Standard	NA
	Cue	As independent reviewer, inform the applicant that step 1.2 is verified.
	Notes	

3.	**Procedure Step:**	Matrix Column 1 Row 4 Perform Attachment 3
	Standard	Applicant transitions to Attachment 3.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

Attachment 3

PROCEDURE NOTE

Technical Specifications requires verification of movement of bypassed control rods by two licensed operators or other Qualified members of the technical staff prior to and during movement. Steps 1.1 through 1.2 satisfy Tech Specs prior to rod motion and the remainder of this attachment satisfies Tech Specs during rod motion.

All Independent Verifications shall be completed prior to performing the next step.

4.	**Procedure Step:**	1.1 Using the approved Reactivity Control Plan, record the control rod to be moved in step 1.6 through step 1.7, of this attachment.
	Standard	Applicant records control rod 16-25 in blanks on steps 1.6 and 1.7. Applicant initials Step 1.1 as complete.
	Cue	Provide applicant with step 107 of RCP 18-014 As the concurrent verifier, inform applicant that step 1.7 is verified.
	Notes	
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	1.2 Using Attachment 1, Control Rod number to Binary Code, determine binary code for selected Control Rod and record below.
	Standard	Applicant used attachment 1 (page 2 of 5) to identify the binary code for control rod 16-25 and recorded the following data in step 1.2 of Attachment 3 X4 = 0 X3 = 0 X2 = 1 X1 = 1 X0 = 0 Y4 = 0 Y3 = 1 Y2 = 0 Y1 = 0 Y0 = 0 Applicant initials Step 1.2 as complete. Applicant request Independent Verifier. *{Cue}*
	Cue	As the independent verifier, inform applicant that step 1.2 is verified.
	Notes	
	Results	SAT ☐ UNSAT ☐

NOTE

The following switches are positioned to enter the Control Rod Binary Address. When the switch is in the RIGHT position, a '1' is input to the Address Register. When the switch is in the LEFT position, a '0' is input to the Address Register.

If a Control Rod Block exists for the bypassed control rod, once the selected control rod is bypassed, Annunciator, P680-07A-C01, CONTROL ROD WITHDRAWAL BLOCK should clear.

Steps 1.3 and 1.4 may be performed concurrently.

Key Number 1161, located on the Reactor Operator key ring in the Unit Operator desk, will be needed to access the Rod Bypass file.

All Independent Verifications must be performed by a second licensed operator or other technically qualified member of the Technical Staff.

6.	***Procedure Step:**	1.3 On H13-P651, Rod Bypass File A3, enter the address obtained in step 1.2 into the Bypass Cards Ident Select Switches of one bypass card.
	Standard	Applicant simulated placing the switches in their proper positions on Panel H13-P651 by drawing arrows on the handout in accordance with the attached key (page 3 of this JPM). X4 = 0 (LEFT) X3 = 0 (LEFT) X2 = 1 (RIGHT) X1 = 1 (RIGHT) X0 = 0 (LEFT) Y4 = 0 (LEFT) Y3 = 1 (RIGHT) Y2 = 0 (LEFT) Y1 = 0 (LEFT) Y0 = 0 (LEFT) Applicant initialed step 1.3 of Attachment 3
	Cue	Provide the applicant with one of the handout pictures of the RACS cabinet. Tell the applicant to draw arrows on the handout to represent positioning the Ident Select Switches. Collect the handout from the applicant
	Notes	Any row of switches will work. There are two picture handouts; one will be used to represent P651 and the other will represent P652.
	Results	SAT ☐ UNSAT ☐

7.	***Procedure Step:**	1.3.1 Place the BYPASS SWITCH in the BYPASSED Position on the effected card.
	Standard	Applicant placed the bypass switch in the BYPASS position. Applicant initials step 1.3.1 of Attachment 3.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

8.	**Procedure Step:**	1.3.2 Check that the BYPASSED LED comes on.
	Standard	Applicant located/identified and verified the bypass LED lit. {Cue} Applicant initials step 1.3.2 of Attachment 3.
	Cue	Inform or represent to the applicant that the LED light is lit.
	Notes	The LED is immediately below the Bypass/Enable Switch and would be readily visible when lit.
	Results	SAT ☐ UNSAT ☐

9.	***Procedure Step:**	1.4 H13-P652, Rod Bypass File A3, enter the address obtained in Step 1.2 into the Bypass Cards Ident Select Switches of one bypass card.
	Standard	Applicant simulated placing the switches in their proper positions on Panel H13-P652 by drawing arrows on the handout in accordance with the attached key (page 3 of this JPM). X4 = 0 (LEFT) X3 = 0 (LEFT) X2 = 1 (RIGHT) X1 = 1 (RIGHT) X0 = 0 (LEFT) Y4 = 0 (LEFT) Y3 = 1 (RIGHT) Y2 = 0 (LEFT) Y1 = 0 (LEFT) Y0 = 0 (LEFT) Applicant initialed step 1.3 of Attachment 3
	Cue	Provide the applicant with one of the handout pictures of the RACS cabinet. Tell the applicant to draw arrows on the handout to represent positioning the Ident Select Switches. Collect the handout from the applicant
	Notes	Any row of switches will work. There are two picture handouts; one will be used to represent P651 and the other will represent P652.
	Results	SAT ☐ UNSAT ☐

10.	**Procedure Step:**	1.4.1 Place the BYPASS SWITCH in the BYPASSED Position on the effected card.
	Standard	Applicant placed the bypass switch in the BYPASS position. Applicant initials step 1.4.1 of Attachment 3.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

11.	**Procedure Step:**	1.4.2 Check that the BYPASSED LED comes on.
	Standard	Applicant located/identified and verified the bypass LED lit. {Cue} Applicant initials step 1.3.2 of Attachment 3.
	Cue	Inform or represent to the applicant that the LED light is lit.
	Notes	
	Results	SAT ☐ UNSAT ☐

12.	**Procedure Step:**	1.5 Check that the POSITION BYP. LED comes on for Control Rod 16-25.
	Standard	NA
	Cue	IF the applicant has given the proper codes for both RACS bypass file A3 cards, THEN inform the applicant that the POSITION BYP LED is ON for control rod 16-25. IF the applicant has **not** given the proper codes for both RACS bypass file A3 cards, THEN inform the applicant that the POSITION BYP LED is not ON for control rod 16-25.
	Notes	

Terminating Cue: Control Rod 16-25 has been bypassed in the RACS Cabinets.

This completes this JPM.

Cue:

STOP TIME: _____

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

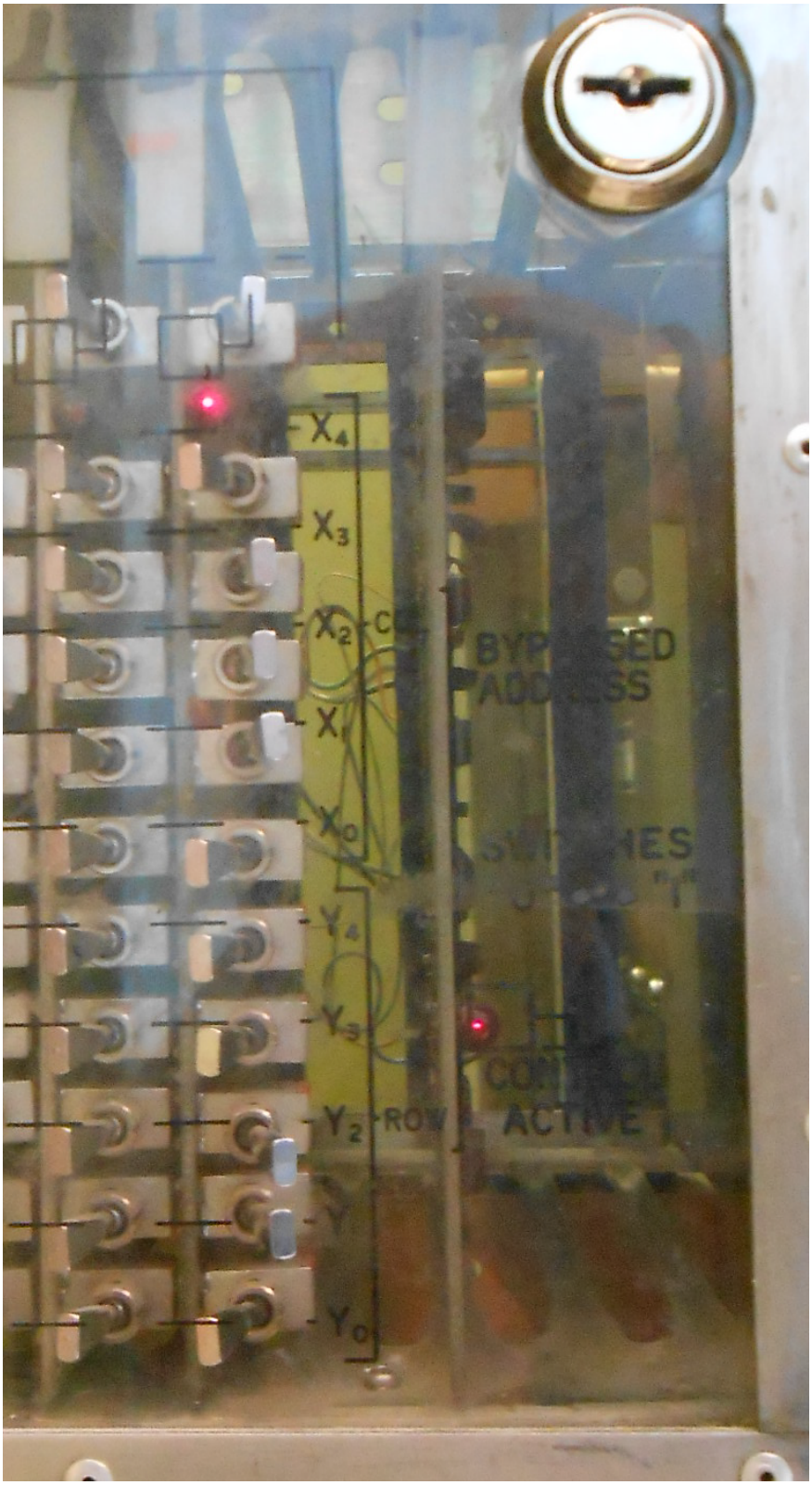
OPERATOR CUE SHEET

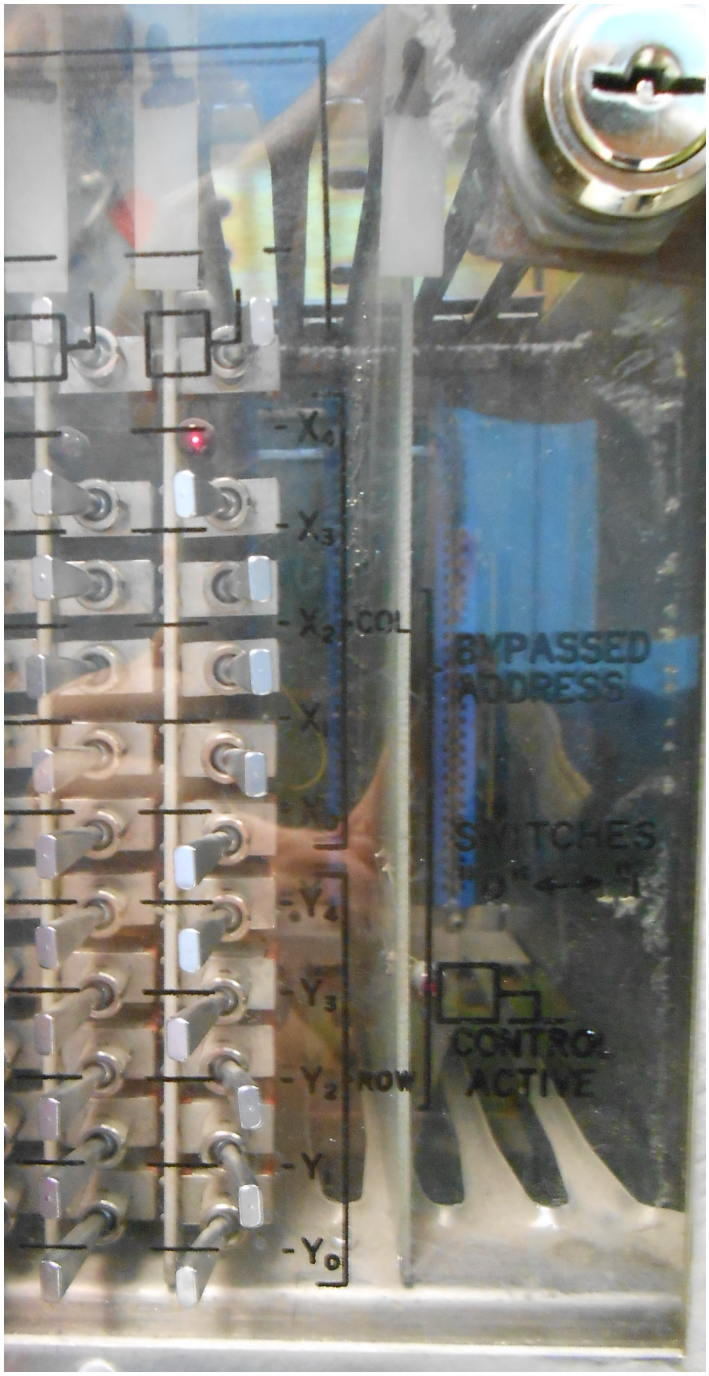
INITIAL CONDITIONS:

The plant is performing a startup. Thermal power is less than 10% of rated. Control rod 16-25 is in the correct position when both position reed switches fail. In order to clear the rod block and continue rod movement Rod 16-25 will have to be bypassed in RACS.

INITIATING CUE:

In order to meet Technical Specification 3.1.3 requirements, the CRS directs you to bypass control rod 16-25 in accordance with STP-500-0705, Bypassing Control Rods in RACS.


X4
X3
X2
X1
X0
Y4
Y3
Y2
Y1
Y0
ACTIVE


- X4
- X3
- X2
COL
- X1
- X0
- Y4
- Y3
- Y2
ROW
- Y1
- Y0
BYPASSED
ADDRESS
SWITCHES
CONTROL
ACTIVE

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
SRO ☒ RO ☒

ALTERNATE PATH ☐

TITLE: **Vent Scram Air Header per EOP-5, Enclosure 11**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**NA**	Actual Time (min):	**NA**
PERFORMANCE TIME:	Average Time (min):	17	Actual Time (min):	

JPM RESULTS*: (Circle one) * SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

	Perform
X	Simulate

EVALUATION LOCATION:

X	Plant
	Simulator
	Control Room

Prepared:	Dave Bergstrom	**Date:**	September 11, 2014
Reviewed:	Steve Carter (Operations Representative)	**Date:**	October 2, 2014
Approved:	Joey Clark (Facility Reviewer)	**Date:**	October 18, 2014

EXAMINER INFO SHEET

Task Standard: Scram air header vented in accordance with EOP-0005, Enclosure 11

Synopsis: This task will have the applicant simulate venting the scram air header.

NOTE:
If in the Plant or the Control Room,
Caution the operator **NOT** to MANIPULATE the controls,
but to make clear what they would do if this were not a simulated situation.

1) **Read to the operator**:
"I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied. Inform me when you have completed the task."

2) Initiating Cues:
The CRS has directed you to perform EOP-0005, Enclosure 11, Venting Scram Air Header in order to insert control rods.

3) Initial Conditions:
An ATWS has occurred. Power is greater than 10%.

4) Solicit and answer any questions the operator may have.

DATA SHEET

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Vent Scram Air Header per EOP-5, Enclosure 11	201001005001	295037 EA1.05	3.9 / 4.0

REFERENCES:
EOP-0005, Encl 11, Venting Scram Air Header Rev 314

APPLICABLE OBJECTIVES
RLP-HLO-0516, Obj 1

REQUIRED MATERIALS:
EOP-0005, Rev 314, Enclosure 11

SAFETY FUNCTION:
1

SIMULATOR CONDITIONS & SETUP:

1. NA – This is an In Plant JPM.

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: Scram air header vented in accordance with EOP-0005, Enclosure 11.

PERFORMANCE:

START TIME: _____

1.	**Procedure Step:**	3.1 OBTAIN EOP-0005 ENCL 11 tool kit from Control Room Emergency Locker.
	Standard	NA
	Cue	Inform the applicant that he has the toolkit.
	Notes	

2.	***Procedure Step:**	3.2 CLOSE C11-VF095 INSTR AIR SUPPLY TO SCRAM PILOT VALVES ISOL (Containment EL 114 ft AZ 195, to right of backup scram valves).
	Standard	Applicant located/identified and simulated closing C11-VF095 by turning the handwheel fully counter clockwise.
	Cue	Inform the applicant that the handwheel is fully counter-clockwise.
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	***Procedure Step:**	3.3 Remove test connection cap downstream of C11-PT-N052-V2 PILOT AIR HEADER PRESSURE TRANSMITTER TEST VALVE (above and left of backup scram valve)
	Standard	Applicant simulated using a crescent wrench to remove the test connection cap by rotating in a counter-clockwise direction.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	***Procedure Step:**	3.4 OPEN C11-PT-N052-V2 PILOT AIR HEADER PRESSURE TRANSMITTER TEST VALVE
	Standard	Applicant simulated opening the test valve by turning the handwheel in a counter-clockwise direction.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

Terminating Cue: Scram air header vented in accordance with EOP-0005, Enclosure 11

This completes this JPM.

STOP TIME: _____

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

INITIAL CONDITIONS:

An ATWS has occurred. Power is greater than 10%.

INITIATING CUE:

The CRS has directed you to perform EOP-0005, Enclosure 11, Venting Scram Air Header in order to insert control rods.

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
SRO ☒ RO ☒

ALTERNATE PATH ☐

TITLE: **Align Div 1 Standby Service Water to Fire Protection Water Supply**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**NA**	Actual Time (min):	**NA**
PERFORMANCE TIME:	Average Time (min):	13	Actual Time (min):	

JPM RESULTS*: (Circle one) * SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

	Perform
X	Simulate

EVALUATION LOCATION:

X	Plant
	Simulator
	Control Room

Prepared:	Dave Bergstrom	**Date:**	September 11, 2014
Reviewed:	Steve Carter (Operations Representative)	**Date:**	October 2, 2014
Approved:	Joey Clark (Facility Reviewer)	**Date:**	October 18, 2014

EXAMINER INFO SHEET

Task Standard: Div 1 SSW is lined up to supply the Fire Protection Water System.

Synopsis: This task will align the Standby Service Water System to the Fire Protection Water System Hose Racks.

NOTE: If in the Plant or the Control Room, **Caution** the operator **NOT** to MANIPULATE the controls, but to make clear what they would do if this were not a simulated situation.

1) **Read to the operator**:

"I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied. Inform me when you have completed the task."

2) Initiating Cues:

The CRS has directed you to align Div 1 SSW to Control Building Fire Water in accordance with Section 5.3 of SOP-0037, Fire Protection Water System.

3) Initial Conditions:

The Div 1 Standby Service Water System has been initiated in the Main Control Room.

4) Solicit and answer any questions the operator may have.

DATA SHEET

TASK Title:	**Task Number**	**K&A SYSTEM:**	**K&A RATING:**
Align Div 1 Standby Service Water to Fire Protection Water Supply	400067004001	264000 K6.01 295003 AA1.02	3.8 / 3.9 4.2 / 4.3

REFERENCES:
SOP-0037, Fire Protection Water, Rev 35

APPLICABLE OBJECTIVES
RLP-STM-0250, Obj 11

REQUIRED MATERIALS:
SOP-0037, Fire Protection Water, Rev 35

SAFETY FUNCTION:
6

SIMULATOR CONDITIONS & SETUP:

1. NA – This is an In Plant JPM.

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: Div 1 SSW is lined up to supply the Fire Protection Water System.

PERFORMANCE:

START TIME: _____

SOP-0037, Fire Protection Water System
Section 5.3, Fire Protection Water Supply via Standby Service Water

PROCEDURE CAUTION
The cross connections described in this section will provide water for fire fighting via manual hose streams in the Control, Fuel, Auxiliary, and Reactor Buildings only. Water will not be available for any automatic water suppression systems.

	Procedure Step:	5.3.1 Manually initiate Standby Service Water in accordance with SOP-0042, Standby Service Water System.
	Standard	NA
	Cue	
	Notes	This step is a place keeper; the initial conditions stated that SSW was initiated.

5.3.2 IF it is desired to supply fire protection hose racks in the Control or Diesel Buildings (including B tunnel), THEN perform the following at the Control Building Fire Protection Valve Header – 98' Elevation SW corner of Control Building:

1.	**Procedure Step:**	1. Verify at least one division of standby Service Water is operating Div 1 Div 2
	Standard	Applicant verified (through initial conditions) that Div 1 SSW was operating.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

2.	***Procedure Step:**	2. IF Division 1 SSW is used, THEN perform the following: 1) Close FPW-V793, CB HOSE RACKS ISOLATION VALVE.
	Standard	Applicant located/identified and simulated closing FPW-V793 by turning the handwheel fully clockwise.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	***Procedure Step:**	2. IF Division 1 SSW is used, THEN perform the following: 2) Unseal/Open SWP-V962, SVCE WTR SUPPLY TO FIRE PROTECTION IN CONTROL BLDG ISOL VLV.
	Standard	Applicant located/identified and simulated unsealing and opening SWP-V962 by turning the handwheel fully counter-clockwise.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	***Procedure Step:**	2. IF Division 1 SSW is used, THEN perform the following: 3) Open FPW-V819, SWP BACKUP TO CB HOSE RACKS ISOLATION VALVE.
	Standard	Applicant located/identified and simulated opening FPW-V819 by turning the handwheel fully counter-clockwise.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

Terminating Cue: Div 1 SSW is lined up to supply the Fire Protection Water System.

This completes this JPM.

STOP TIME: _____

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

INITIAL CONDITIONS:

The Div 1 Standby Service Water System has been initiated in the Main Control Room.

INITIATING CUE:

The CRS has directed you to align Div 1 SSW to Control Building Fire Water in accordance with Section 5.3 of SOP-0037, Fire Protection Water System.

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
SRO ☒ RO ☒

ALTERNATE PATH ☒

TITLE: **Perform UO Actions to Operate the Div 1 EDG, Using AOP-31**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**10**	Actual Time (min):	
PERFORMANCE TIME:	Average Time (min):	10	Actual Time (min):	

JPM RESULTS*: (Circle one) * SAT UNSAT
Refer to Grading Instructions at end of JPM

EVALUATION METHOD:

	Perform
X	Simulate

EVALUATION LOCATION:

X	Plant
	Simulator
	Control Room

Prepared: Dave Bergstrom **Date:** November 10, 2014

Reviewed: Steve Carter **Date:** November 11, 2014
(Operations Representative)

Approved: Joey Clark **Date:** November 11, 2014
(Facility Reviewer)

EXAMINER INFO SHEET

This JPM contains a Time Critical Step.

Task Standard: A reactor Scram confirmatory signal has been initiated within 5 minutes; breakers ENB-SWG01B ACB 586 and ENB-SWG01A ACB567 are opened within 10 minutes; and SCV-PNL15A1 Breaker 14 is closed.

Synopsis: A fire in the Main Control Room has caused entry into AOP-0031, Shutdown from Outside the Main Control Room. The applicant is tasked with performing the Unit Operator Actions of AOP-31 (Attachment 13) starting with initiating a confirmatory scram signal through opening the EPA breakers which is a **TIME CRITICAL** step (within 5 minutes), then opening two breakers that will close any SRVs that may have opened due to hot shorts. This is accomplished by performing step 1.2 of attachment 13, which is also a **TIME CRITICAL** step (within 10 minutes).
Steps 1.3 through 1.5 are performed to transfer control of the Div 1 EDG from the control room to local control. As an alternate path, the applicant will investigate and correct a loss of transfer relay power per Attachment 4.10 of the same AOP.

NOTE: If in the Plant or the Control Room,
Caution the operator **NOT** to MANIPULATE the controls,
but to make clear what they would do if this were not a simulated situation.

1) **Read to the operator**:
"I will provide the initial conditions and initiating cues to you. I may also provide cues during the performance and ask follow-up questions at the conclusion of this JPM. When you complete the task successfully, the objective for this JPM will be satisfied. Inform me when you have completed the task."

2) Initiating Cues:
The CRS has directed you to perform the UO Actions of AOP-0031 per Attachment 13.

3) Initial Conditions:

The Main Control Room has been evacuated due to a fire; the Reactor is in Hot Shutdown and control is being established at the Remote Shutdown Panels. AOP-0031, Shutdown from Outside the Main Control Room has been entered.

4) Solicit and answer any questions the operator may have.

DATA SHEET

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Perform UO Actions to Operate the Div 1 EDG, Using AOP-31	400076004001	295016 AA1.04 AA1.07	3.1 / 3.2 4.2 / 4.3

REFERENCES:

AOP-0031, Shutdown from Outside the Main Control Room, Rev 322

APPLICABLE OBJECTIVES

RLP-OPS-AOP0031, Obj 4,5

REQUIRED MATERIALS:

Attachment 13, UO Actions of AOP-0031, Shutdown from Outside the Main Control Room, Rev 322
And
Attachment 4.10, same procedure

SAFETY FUNCTION:

6

SIMULATOR CONDITIONS & SETUP:

1. NA – This is an In Plant JPM.

CRITICAL ELEMENTS: Items marked with an "*****" are Critical Steps and are required to be performed. Failure to successfully complete a Critical Step requires the JPM to be evaluated as Unsatisfactory.

TASK STANDARD: A reactor Scram confirmatory signal has been initiated within 5 minutes, breakers ENB-SWG01B ACB 586 and ENB-SWG01A ACB567 are opened within 10 minutes and SCV-PNL15A1 Breaker 14 is closed.

PERFORMANCE:

START TIME: _____

AOP-0031, Shutdown from Outside the Main Control Room, Attachment 13, UO Actions

PROCEDURE NOTE

The Unit Operator obtains and completes the steps in this attachment. Upon completion, he remains at the Div 1 RSS Room and conducts operations as directed by the CRS.

1.1 IF a Control Room fire is in progress, THEN initiate a Reactor Scram confirmatory signal as follows:

PROCEDURE NOTE

If a Main Control Room fire is in progress, then Step 1.1.1 shall be completed within 5 minutes of scramming the reactor.

1.1.1 At Control Building 116 ft el Div 1 Electrical Protection Assemblies area (RPS MG area), perform the following:

1.	***Procedure Step:**	1.1.1.1 At RPS A MOTOR GENERATOR SET, depress AND hold the RPS MG-SET MOTOR OFF pushbutton until the red MOTOR ON light goes off.
	Standard	Applicant located/identified and simulated depressing the OFF pushbutton.
	Cue	After applicant simulates depressing the pushbutton, inform the applicant that the red MOTOR ON light is no longer lit.
	Notes	
	Results	SAT ☐ UNSAT ☐

2.	***Procedure Step:**	1.1.1.2 Place the following Div 1 Electrical Protection Assemblies in OFF: • C71-S003C • C71-S003F • C71-S003A • C71-S003E
	Standard	Applicant located/identified and simulated turning the four switches counter-clockwise to the OFF position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	***Procedure Step:**	1.1.1.3 At RPS B MOTOR GENERATOR SET, depress AND hold the RPS MG-SET MOTOR OFF pushbutton until the red MOTOR ON light goes off.
	Standard	Applicant located/identified and simulated depressing the OFF pushbutton.
	Cue	After applicant simulates depressing the pushbutton, inform the applicant that the red MOTOR ON light is no longer lit.
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	***Procedure Step:**	1.1.1.4 Place the following Div 2 Electrical Protection Assemblies in OFF: • C71-S003H • C71-S003D • C71-S003G • C71-S003B
	Standard	Applicant located/identified and simulated turning the four switches counter-clockwise to the OFF position.
	Cue	
	Notes	This completes the 5 minute Time Critical action.
	Results	SAT ☐ UNSAT ☐

Record time to verify Time Critical Step is completed within 5 minutes: _____

	Procedure Step:	1.1.2 Go to CB 98' Div 1 and 2 Switchgear Rooms and continue with the next step.
	Standard	NA
	Cue	
	Notes	This is a placekeeper: the applicant will transition to the 98 ft elev of the Control Building
	Results	SAT ☐ UNSAT ☐

PROCEDURE NOTE

Step 1.2 is required to be completed within 10 minutes of scramming the reactor due to a Main Control Room fire.
The following steps will close any SRVs opened due to hot shorts.

5.	***Procedure Step:**	1.2 IF a Main Control Room Fire is in progress, THEN open the following breakers: • ENB-SWG01A ACB 586, ENB-PNL02A CONTROL ROOM
	Standard	Applicant located/identified and simulated opening ACB 567 by depressing the red TRIP button.
	Cue	After applicant simulates depressing the TRIP pushbutton, inform the applicant that the window above the trip button now shows green and has the word OPEN.
	Notes	This breaker is in the Div 1 Switchgear Room on the 98' elevation of the Control Building. This completes the 10 minute Time Critical action.
	Results	SAT ☐ UNSAT ☐

6.	***Procedure Step:**	1.2 IF a Main Control Room Fire is in progress, THEN open the following breakers: • ENB-SWG01A ACB 567, ENB-PNL02A CONTROL ROOM
	Standard	Applicant located/identified and simulated opening ACB 567 by depressing the red TRIP button.
	Cue	After applicant simulates depressing the TRIP pushbutton, inform the applicant that the window above the trip button now shows green and has the word OPEN.
	Notes	This breaker is in the Div 1 Switchgear Room on the 98' elevation of the Control Building. This completes the 10 minute Time Critical action.
	Results	SAT ☐ UNSAT ☐

Record time to verify Time Critical Step is completed within 10 minutes: _____

PROCEDURE NOTE

If a main control room fire is in progress, Steps 1.3 through 1.27 are to be performed, as required based on equipment status, within 45 minutes of scramming the reactor to ensure Div 1 D/G and Div 3 D/G are supplying power to their own divisional buses.

7.	***Procedure Step:**	1.3 At EGS-PNL4A manually transfer control of the Division 1 Emergency Diesel Generator by placing the following switches in EMERGENCY: • 43-1EGA N05
	Standard	Applicant located/identified and rotated the transfer switch clockwise to the EMERGENCY position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

8.	***Procedure Step:**	1.3 At EGS-PNL4A manually transfer control of the Division 1 Emergency Diesel Generator by placing the following switches in EMERGENCY: • 43-1EJS A01
	Standard	Applicant located/identified and rotated the transfer switch clockwise to the EMERGENCY position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

9.	***Procedure Step:**	1.3 At EGS-PNL4A manually transfer control of the Division 1 Emergency Diesel Generator by placing the following switches in EMERGENCY: • 43-1ENS C04
	Standard	Applicant located/identified and rotated the transfer switch clockwise to the EMERGENCY position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

10.	**Procedure Step:**	1.4 WHEN Div 1 power is available, THEN on EGS-PNL4A, STBY DIESEL GEN RMT SHUTDN PNL, check CONTROL POWER MONITOR CKT EGA N05 light is on.
	Standard	Applicant located/identified the EGA N05 light on EGS-PNL4A.
	Cue	Indicate that this light is NOT lit.
	Notes	The light is above the transfer switches
	Results	SAT ☐ UNSAT ☐

ALTERNATE PATH:

11.	**Procedure Step:**	1.5 IF CONTROL POWER MONITOR CKT EGA N05 light is off, THEN inform the CRS and refer to Attachment 4.10.
	Standard	Applicant reported the failure to the CRS. {cue} Applicant transitions to Attachment 4.10.
	Cue	As the CRS, accept the report.
	Notes	
	Results	SAT ☐ UNSAT ☐

AOP-0031, Attachment 4.10, Control Power Monitor CKT EGAN05 Out

12.	***Procedure Step:**	Operator Actions 1. Investigate and correct cause of loss of transfer relay power. Possible Causes 1. In Div 1 DG Room SCV-PNL15A1 Bkr 14 is tripped or OFF
	Standard	Applicant located/identified and reset/closed Breaker 14 on SCV Panel 15A1
	Cue	When applicant locates the correct breaker, indicate the breaker is tripped (not all the way to the left, with a red flag showing). If asked, as the CRS, give permission for the applicant to reset Bkr 14. When applicant has simulated resetting and closing the correct breaker, indicate that the breaker is in the closed position.
	Notes	Typical 120 VAC breaker – fully open the breaker by moving switch to the right, then close the breaker by moving switch to the left.
	Results	SAT ☐ UNSAT ☐

Terminating Cue: A reactor Scram confirmatory signal has been initiated within 5 minutes, breakers ENB-SWG01B ACB 586 and ENB-SWG01A ACB567 are opened within 10 minutes and SCV-PNL15A1 Breaker 14 is closed.

This completes this JPM.

STOP TIME: _____

JPM COMMENT SHEET

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable.
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

OPERATOR CUE SHEET

INITIAL CONDITIONS:

The Main Control Room has been evacuated due to a fire; the Reactor is in Hot Shutdown and control is being established at the Remote Shutdown Panels. AOP-0031, Shutdown from Outside the Main Control Room has been entered.

INITIATING CUE:

The CRS has directed you to perform the UO Actions of AOP-0031 per Attachment 13.

Appendix D **Scenario Outline** **Form ES-D-1**

Facility: River Bend Station Scenario No.: NRC-1 (Spare) IC No.: 251

Examiners: _____ Operators: _____
_____ _____
_____ _____

Initial Conditions: 84% reactor power
B21-SRV51C is leaking - resulting in slowly rising suppression pool level
ADS-SRV Leaking Alarm is in
CWS-P1D tagged out for motor rewind

Turnover Shift priorities: 1) Plant Shutdown in-progress due to leaking SRV; Reactor Engineering directs perform Step 2 of the RMP and then contact RE further guidance. 2) Perform SOP-0031, Section 4.8, Suppression Pool Reject to Radwaste

Event No.	Malf. No.	Event Type*	Event Description
0	MSS007K	NA	SRV 51C is leaking (Initial Condition)
1	NA	R (ATC)	Insert Control Rods per RMP step 2 (Reactivity Manipulation)
1a	CRDM3633	TS (SRO)	Control Rod Accumulator Fault (Tech Spec)
2	NA	N (SRO, BOP)	Perform SOP-0031 Section 4.8, Suppression Pool Reject to Radwaste
3 T	RHR010A	C (SRO, BOP)	RHR 'A' Pump Shaft Shear (Tech Spec)
4 T	FWS017A	I (SRO, ATC)	Steam Line Flow Transmitter A fails downscale (AOP-0006)
5	NA	N (SRO,ATC)	Perform SOP-0009 Section 6.3, Three Element to Single Element Control Transfer (Booth call if necessary)
6 T	ED003D	C (SRO, ATC)	Loss of NNS-SWG2A (AOP-0005)
7	CRDM2017 CRDM3641 CRDM4425	M (ALL)	Reactor scram with turbine trip due to loss of vacuum ATWS - 3 Control Rods
8	MSS005K	C (SRO, BOP)	Safety Relief Valve 51C fails open (AOP-0035)
9	RHS-AOV64P	C (BOP)	RHS-AOV64 Fails to auto isolate. (AOP-0003)

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Total Malfunctions (5-8) (7) Accum Fault, RHR A Shear, MSL A Flow XMT, Loss NNS-SWG2A, SRV open, ATWS, RHS-AOV64 failure

Malfunctions after EOP entry (1-2) (2) SRV open, failure to isolate

Abnormal Events (2-4) (4), AOP-0006, AOP-0005, AOP-0035, AOP-0003

Major Transients (1-2) (1) Reactor scram with turbine trip due to loss of vacuum / 3 Control Rod ATWS

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EOPs entered (1-2) (2) EOP-0001/ EOP-0001A

EOP contingencies (0-2) (1) Enter EOP-0001A

Critical Tasks (2-3) (2) SRV closed; All control rods inserted

General Scenario Outline

Event 0 - The crew takes the shift with a plant shutdown (84%) in progress due to a leaking SRV. CWS-P1D is tagged out for motor rewind.

Event 1 – The team reduces reactor power with control rods per Step 2 of the shutdown reactivity maneuvering plan, which lowers reactor power to 80%. Following movement of the last control rod an accumulator fault occurs due to high moisture resulting in TRM 3.1.5.1 entry

Event 2 – The team now starts RHR A in suppression pool cooling mode and begins reject of suppression pool to the radioactive waste system per SOP-0031 section 4.8.

Event 3 – During establishment of suppression pool reject the shaft shears on RHR pump A requiring entry into Tech Spec 3.5.1 and 3.6.2.3. The system lineup is secured

Event4 – The team next combats a failure of the A steam flow transmitter (down-scale) for the feedwater level control system. Manual control is established to stabilize and restore RPV water level per Abnormal Operating Procedure AOP-0006.

Event5 – Following failure of the steam flow transmitter Single Element Control is established by the team to allow for automatic RPV level control per SOP-0009 Section 6.3.

Event6 - Next a loss of circulating water switchgear NNS-SWG2A bus occurs, resulting in a loss of most of the condenser cooling pumps requiring entry into abnormal operating procedure AOP-0005 for a loss of condenser vacuum and the plant will have to be shutdown (Scrammed) due to loss of vacuum.

Event 7 – After the mode switch is taken to shutdown, three control rods fail to insert resulting in a low power (0%) ATWS condition. EOP-0001A is entered and action taken to insert the control rods
(Critical task to insert all control rods prior exiting EOP-1A, RPV CONTROL, ATWS)

Event 8 – Also following plant shutdown the leaking safety relief valve (SRV 51C) opens fully resulting in an uncontrolled RPV pressure drop, actions are taken per abnormal operating procedure AOP-0035 and the SRV is successfully closed.
(Critical task to close the SRV prior to exceeding the Heat Capacity Temperature Limit)

Event 9 – The final event is a failure of secondary containment isolation valve for the suppression pool cleanup system (RHS-AOV64) to isolate on the low RPV water level 3 received (as expected) during plant shutdown, requiring entry into AOP-0003.

RIVER BEND STATION SIMULATOR SCENARIO	Number: ***RSMS-NRC-D14-1** Revision: **00** Page 1 of **29** Approximate Time: 1 Hour(s) Record Type: ***Z01.24**

TRAINING PROGRAM:

SIMULATOR TRAINING

LESSON PLAN:

***RHR 'A' pump shaft shear, Steam Flow Transmitter failure, Loss NNS-SWG2A, 3 Rod out ATWS, SRV fails open**

REASON FOR REVISION:

NRC December 2014 exam

PREPARE / REVIEW:

Thomas LaPorte	0160	07-23-2014
Preparer	KCN	Date
Dave Bergstrom	0257	09-30-2014
Technical Review (SME)	KCN	Date
Steve Carter	0358	10-01-2014
Operations Representative	KCN	Date
Joey Clark	0260	10-18-2014
Facility Reviewer	KCN	Date

* Indexing Information

I. DESCRIPTION OF SCENARIO

This scenario begins with the plant at 84% power with CWS-P1D tagged out and leaking SRV.
Events for this scenario:

- Reduce power with control rods
- Perform SOP-0031 Section 4.8, Suppression Pool Reject to Radwaste
- RHR 'A' Pump Shaft Shear (Tech Spec)
- Steam Line Flow Transmitter 'A' fails low (AOP-0006)
- Perform Three element to single element transfer per SOP-0009, Section 6.3
- Loss of NNS-SWG2A (AOP-0005)-causes loss of vacuum
- Rx Scram on Low Vacuum
- 3 rods stick out therefore ATWS
- SRV 51C fails open following turbine trip
- RHS-AOV64 fails to auto isolate on level 3

II. TERMINAL OBJECTIVE

1. Given a series of events in the simulator, perform actions to mitigate the consequences of the events in accordance with approved station procedures.

III. ENABLING OBJECTIVES

1. Reduce reactor power in accordance with EN-RE-215.
2. Establish Suppression Pool Reject to Radwaste per SOP-0031 Section 4.8.
3. Respond to RHR pump shaft shear per SOP-0031 and ARP-
4. Respond to Steam line flow transmitter A failure low per AOP-0006.
5. Perform Three element to single element transfer per SOP-0009, Section 6.3
6. Respond to loss of NNS-SWG2A and resulting circulating water pump loss per AOP-0005.
7. Respond to ATWS in accordance with EOP-0001A.
8. Respond to failed open SRV per AOP-0035.
9. Respond to failure of RHS-AOV64 to isolate per AOP-0003.

IV. INITIAL CONDITIONS/SHIFT TURNOVER

INITIAL CONDITION	TRAINING FOCUS	EQUIPMENT STATUS	REQUIRED DOCUMENTS
IC #251		**Power:** 84% **Core:** Xenon equilibrium **Equipment OOS:** CWS-P1D **STPs Due:** None **LCOs:** None **Evolutions in progress:** High Suppression Pool Level due to leaking SRV RHR 'A' SPC and Reject to Radwaste required **Problem/Lit annunciators:** ADS-SRV Leaking (601-19A-B09)	

V. GENERAL INSTRUCTIONS

Instructions	MFS-OR-REM-SCH	Notes
Check Boards for Equip Tags Check procedures and hard cards for marks Check Gauges/Meters for marks. Make marked-up copies of STPs available. Check that the Shutdown Plan is appropriate for this scenario. Check power <3090 MWth Bring up Insight –	**Malfunctions** **MSS007K,** SRV, 1B21*F051C LEAKS **CRDM2017, STUCK,** CONTROL ROD 2017 FAILURES **CRDM3641, STUCK,** CONTROL ROD 3641 FAILURES **CRDM4425, STUCK,** CONTROL ROD 4425 FAILURES **RHS-AOV64P, 100,** RHS-AOV64 SPC SUCTION ISOL VALVE POSITION **T25 RHS-AOV64P, 100, DELETE 00:00:01,** RHS-AOV64 SPC SUCTION ISOL VALVE POSITION **T2 CRDM2025, ACCUMFLTS,** CONTROL ROD 2025 FAILURES **T3 RHR010A,** RHR PUMP A SHEARED SHAFT **T4 FWS017A, 0,** STEAM FLOW XMITTER, C33-N003A FAILURE **T6 ED003D,** NNS-SWG2A BUS FAULT (4160 VAC)	

Instructions	MFS-OR-REM-SCH	Notes
	T7 CRDM2017, STUCK, DELETE 00:00:01, CONTROL ROD 3641 FAILURES **T7 CRDM3641, STUCK, DELETE 00:00:01,** CONTROL ROD 4041 FAILURES **T7CRDM4425, STUCK, DELETE 00:00:01,** CONTROL ROD 4045 FAILURES **T8 MSS005K, Delay 00:02:00,** SRV 1B21*F051C FAILS OPEN **Remote Functions** **T29 MSS012** OPERATE SRV 'B' SOLENOID SWITCHES **T30 MSS009, OUT,** MAIN STEAM DIV 1 SRV F051C FUSE **T30 MSS016, OUT,** MAIN STEAM DIV 2 SRV F051C FUSE **T12 EOP012A, JUMPRD,** EOP-5 ENCL 12 (RPS SIGNALS) **T12 EOP012B, JUMPRD,** EOP-5 ENCL 12 (ARI SIGNALS) **T14 EOP014, JUMPRD,** EOP-5 ENCL 14 (RC&IS INTERLOCKS)	

Instructions	MFS-OR-REM-SCH	Notes	
	T16 EOP016, JUMPRD, EOP-5 ENCL 16 (CONTAINMENT IAS ISOL) **T18 EOP018, JUMPRD,** EOP-5 ENCL 18 (FWP LEVEL 8 TRIPS) **T24 EOP024, JUMPRD,** EOP-5 ENCL 24 (MSIV & MSL DRAIN LEVEL 1) **T28 CRDM2025, ACCUMFLTS, Delay 00:05:00, Delete 00:00:01,** CONTROL ROD 2025 FAILURES **T26 ECCS004, OUT,** RHR A PUMP BREAKER **T27 ECCS003, OUT,** LPCS PUMP BREAKER **Overrides** **NONE** **Events** **T25 DI_RHS-AOV64 CLOSE, (ZDI5(632),** 601C SPC SUCTION VALVE		
Event 0	**RUN**	CREW:	Board walk down / Turnover.

Booth Instructions	Time	Position	Applicant's Actions or Behavior
As console operator following completion of movement of control rod 36-33 insert **T2 CRDM3633, ACCUMFLTS,** CONTROL ROD 36-33 FAILURES **ROLE PLAY:** As reactor engineer acknowledge completion of RMP Step 2a and state that you will be performing monitor cases while they reject suppression pool water. As reactor building report that accumulator pressure is 1660 psig and that you will be check for moisture, wait 5 minutes then insert **T28 CRDM2025, ACCUMFLTS, Delay 00:05:00, Delete 00:00:01,** CONTROL ROD 36-33 FAILURES, and report that 60cc of moisture have been drain and that accumulator pressure is 1650 psig		SRO	Annunciator: ARP-680-07-C03 Accumulator Trouble • Direct the ATC to perform RMP Step 2a to lower reactor power. • Acknowledge accumulator trouble on control rod 36-33 and direct performance of ARP-680-07-C03 actions • Enter Technical Specifications TR 3.1.5.1 Control Rod Scram Accumulator Detectors / alarm Instrumentation • Condition A, Verify the affected accumulator pressure >= 1540psig once per 24 hours. Examiner Note: must enter condition A due to alarm above
		ATC	• Accept the direction to perform RMP Step 2a to lower reactor power. • Perform Shutdown Plan RMP Step 2a control rod insertion per SOP-0071, ROD CONTROL AND INFORMATION SYSTEM.

Booth Instructions	Time	Position	Applicant's Actions or Behavior

		ATC	• Utilize the operator control module to select the rod to be moved (20-33)
			• Check that a Rod Insertion Block or Inhibit does not exist
			• Depress and hold C11A-S314, INSERT Pushbutton
			• When rod is full inserted release the INSERT Pushbutton
			  • Rod moves from position 06 to position 00
			• Utilize the operator control module to select the rod to be moved (25-33)
			• Check that a Rod Insertion Block or Inhibit does not exist
			• Depress and hold C11A-S314, INSERT Pushbutton
			• When rod is full inserted release the INSERT Pushbutton
			  • Rod moves from position 06 to position 00

Booth Instructions	Time	Position	Applicant's Actions or Behavior
		ATC	• Recognize and report accumulator trouble and perform ARP-680-07-C03 actions as follows: • Determine which rod is alarming by depressing the ACCUM FAULT pushbutton and observing red lights on the Rod Position Display Panel. • Reset annunciator by depressing the ACKN ACCUM FAULT pushbutton. • Verify charging water header pressure is greater than 1540 psig • Dispatch building operator to investigate

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event initiated by crew from turnover sheet. **ROLE PLAY:** As reactor building operator, report pump start checks are satisfactory **ROLE PLAY:** As radwaste operator, respond that you are ready to receive suppression pool reject. As chemistry if contacted report that suppression pool activity is within specifications		SRO	• Direct the UO to perform SOP-0031 Section 4.8 Suppression Pool Reject to Radwaste.

		BOP	• Accept the direction to perform SOP-0031 Section 4.8 Suppression Pool Reject to Radwaste.
			• Perform SOP-0031 Section 4.8.
			  • Throttle E12-F068A to ≤ 5800gpm
			  • Plant announcement for start of RHR pump
			  • Start E12-C002A
			Annunciator: P601-19A-F07,
			Div 1 ADS Logic LPCS/LPCI OPR Permissive
			  • Open E12-F024A, RHR Test Return to Supp Pool
			  • Throttle closed E12-F048A to obtain desired cooling
			• Begin Suppression Pool Reject by:

Booth Instructions	Time	Position	Applicant's Actions or Behavior
			• Open E12-F049, Up Stream Radwaste Isolation • Throttle open E12-F040, RHR to Radwaste Down Stream Isolation

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event initiated at Lead Evaluator discretion while rejecting suppression pool to radwaste. **T3 RHR010A,** RHR PUMP A SHEARED SHAFT **ROLE PLAY:** As WMC/Maintenance, accept request for help to investigate As reactor building operator, accept direction to investigate RHR 'A' pump (Pump). After ~5 minutes report back that you do not see anything wrong with the pump **Time Called** **Call Back Time** _____ _____ As control building operator, accept direction to investigate RHR 'A' pump (Breaker). After ~ 5 minutes report back that indications on the breaker show that it is closed.		SRO / BOP	Annunciators: • P601-20A-C04, RHR Pump A Disch Pressure Hi/Low • P601-21A-C07, LPCS Injection Line Pressure Hi/Low Indications: • RHR A Pump Discharge Pressure lowers to approx. 0 psig • RHR Pump Motor Amps lowers drastically
		SRO	• Direct the ATC to secure the pump and isolate the radwaste reject and test return flow paths. • Notify WMC/Maintenance of RHR 'A' pump shaft shear. • Complete OSP-0046 notifications. • Enter Tech Spec 3.5.1 ECCS Operating Condition A One low pressure ECCS injection/spray subsystem inoperable **(Note for Examiners: They may also enter Condition C One ECCS and one ECCS spray subsystems inoperable, if LPCS was declared INOP until filled and vented).**

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Time Called _____ **Call Back Time** _____ **ROLE PLAY:** As control building operator if directed to rack out / remove control power fuses for RHR A then insert **T26 ECCS004, OUT,** RHR A PUMP BREAKER As control building operator if directed to rack out / remove control power fuses for LPCS then insert **T27 ECCS003, OUT,** LPCS PUMP BREAKER As back panel if requested, report that RHR system pressure is <28 psig if annunciator P601/20A/C04 is in alarm, OR > 28 psig if annunciator P601/20A/C04 is clear As back panel if requested report that LPCS system pressure is stable at 10 psig if annunciator H13-P601/20A/C04 is in alarm, > 15 psig if annunciator H13-P601/20A/C04 is clear		SRO	• A.1 Restore low pressure ECCS injection/spray subsystem to OPERABLE status within 7 days (C.1 Restore one ECCS injection/spray subsystem to OPERABLE status within 72 hours, if LPCS declared INOP until filled and vented) • Enter Tech Spec 3.6.2.3 Condition A, One RHR suppression pool cooling subsystem inoperable • A.1 Restore RHR suppression pool cooling subsystem to OPERABLE status within 7 days • Reference Tech Spec 3.4.9 Condition A, One RHR shutdown cooling subsystem inoperable for applicability. • Applicable in Mode 3 with reactor steam dome pressure less than the RHR cut in permissive pressure.
		BOP	• Recognize/report the shaft shear of RHR pump. • Refer to ARP-601-20A-C04 • Check the trip units in the backpanel (phone to booth) • Isolate test return flow path by closing E12-F024A

Booth Instructions	Time	Position	Applicant's Actions or Behavior
ROLE PLAY: As building operator if directed to fill and vent systems wait 5 minutes and then report that systems have been filled and vented. As building operator if directed to inspect suppression pool for debris then wait 5 minutes and report that there is no debris in the suppression pool. **ROLE PLAY:** As Radwaste operator acknowledge report that suppression pool reject is complete			• Secure the pump and isolate radwaste reject flow path by closing E12-F040 and/or E12-F049 • Dispatch building operators to investigate pump issues. • Place RHR A in shutdown lineup per SOP-0031, RESIDUAL HEAT REMOVAL SYSTEM • Verify closed E12-F040, RHR A TO RADWASTE DN STREAM ISOL VALVE • Verify closed E12-F049, RHR A TO RADWASTE UP STREAM ISOL VALVE • Inform Radwaste personnel suppression pool reject complete • Secure suppression pool cooling lineup • Verify closed E12-F024A, RHR PUMP A TEST RTN TO SUP PL

Booth Instructions	Time	Position	Applicant's Actions or Behavior
			• Verify E12-C002A, RHR PUMP A secured • Verify open E12-F003A RHR A HX OUTLET VALVE • Verify open E12-F048A, RHR A HX BYPASS VALVE • Verify open E12-F064A, RHR PUMP A MIN FLOW TO SUP PL • Close E12-F068A, RHR HX A SVCE WTR RTN

Booth Instructions	Time	Position	Applicant's Actions or Behavior
T4 FWS017A, 0, STEAM FLOW XMITTER, C33-N003A FAILURE *Event trigger T4 initiated at Lead Evaluator discretion.* **ROLE PLAY:** As WMC/Maintenance, accept request for help to investigate / repair steam flow transmitter issue. As Duty Manager request that feedwater level control be placed in single element while the failure mode analysis team is formed to investigate the steam flow transmitter issue.		SRO	Indications: • Feed flow/steam flow mismatch / steam flow downscale • Lowering RPV level Possible Annunciator: p680-3A-B08, RPV High/Low Water Level • Accept report from ATC of C33-N003A failure. • Direct ATC to take manual control of feedwater level • Notify WMC/Maintenance of C33-N003A failure. • Complete OSP-0046 notifications. • Enter AOP-0006, CONDENSATE/FEEDWATER FAILURES. • Reference AOP-0007, LOSS OF FEEDWATER HEATING (Examiner Note: A loss of feedwater heating does not exist)

Booth Instructions	Time	Position	Applicant's Actions or Behavior
		ATC	• Recognize and report C33-N003A failure • Take manual control of feedwater level in accordance with AOP-0006, CONDENSATE/FEEDWATER FAILURES. • Restore RPV level to normal band using the master controller set in manual.

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event initiated by crew.		SRO	• Direct the ATC to perform SOP-0009 Section 6.3 Three Element to Single Element Control Transfer.

		ATC	• Accept the direction to perform SOP-0009 Section 6.3 Three Element to Single Element Control Transfer.
			• Perform SOP-0009 Section 6.3 Three Element to Single Element Control Transfer.
			  • Verify C33R600 in manual
			  • Select 1 ELEM on the SINGLE ELEMENT THREE ELEMENT SELECT
			  • Null out level error with tape setpoint on C33-R6000, FW REG VALVES MASTER FLOW CONTROLLER.
			  • Check for proper operation by adjusting tape set 2 inches above and below while observing deviation signal
			  • Match Tape set to actual level and place in AUTO.
			  • Adjust tape set to maintain the level requested by the CRS

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event T6 initiated at Lead Evaluator discretion. **T6 ED003D,** NNS-SWG2A BUS FAULT (4160 VAC)		CREW	Annunciators: P808-86A-A08, NPS-SWWG1A DIST BRKR AUTO TRIP Several others for various loads that were lost, including: Service Water Disch Header Pressure Extreme Low STBY Diesel Gen Service Water Low Flow Turbine Bldg Vent Chillers Auto Trip Norm Service Wtr to STBY Service Wtr Low Pressure Control Bldg Chiller 1A or 1C Pre-Trip
		SRO	• Accept report about the Loss of NNS-SWG2A. • Assign AOP-0005, LOSS OF MAIN CONDENSER VACUUM/TRIP OF CIRCULATING WATER PUMP. • Direct the ATC to monitor condenser vacuum.

		ATC	• Accept assignment of AOP-0005, LOSS OF MAIN CONDENSER VACUUM/TRIP OF CIRCULATING WATER PUMP.
			• Monitor condenser vacuum and take action in accordance with AOP-0005.
			  • Reduce power to maintain condenser vacuum in the acceptable region of the graph in AOP-0005.
			  • If condenser vacuum is in the unacceptable region of the graph in AOP-0005 then manually scram the reactor by placing the Mode switch in shutdown.

		BOP	• Recognize and report Loss of NNS-SWG2A.

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event 7 initiated as a result of Event 6. **CRDM3641, STUCK,** ROD 3641 FAILURES **CRDM4041, STUCK,** ROD 4041 FAILURES **CRDM4045, STUCK,** ROD 4045 FAILURES **ROLE PLAY** Back Panel Operator, accept request to install Enclosures and other back panel operations. • **T12 EOP012A, JUMPRD,** EOP-5 ENCL 12 (RPS SIGNALS) • **T12 EOP012B, JUMPRD,** EOP-5 ENCL 12 (ARI SIGNALS) • **T14 EOP014, JUMPRD,** EOP-5 ENCL 14 (RC&IS INTERLOCKS) • **T16 EOP016, JUMPRD,** EOP-5 ENCL 16 (CONTAINMENT IAS ISOL) • **T18 EOP018, JUMPRD,** EOP-5 ENCL 18 (FWP LEVEL 8 TRIPS) • **T24 EOP024, JUMPRD,** EOP-5 ENCL 24 (MSIV)		SRO	• Direct/ Acknowledge the ATC to insert a manual reactor scram due to lower condenser vacuum. • Accept the ATWS (Scram) Report, Acknowledging 3 rods out ATWS. • Enter EOP-1on level 3 and transition to EOP-1A • Direct EOP-1A actions: • ATC - restore and maintain RPV water level from -20 to 51 inches with Feed & Condensate and stabilize reactor pressure 950 - 1090 psig, and then give band of 800-1090 psig. • UO – Inhibit ADS and Terminate and Prevent HPCS • ATC – assigned AOP-0001, REACTOR SCRAM and AOP-0002, TURBINE AND GENERATOR TRIPS. • UO – assigned AOP-0003, AUTO ISOLATIONS and installation of EOP-0005 Enclosure 16 for Air, 12 for RPS, 14 for RC&IS, and 24 for MSIVs • Direct reset of scram utilizing AOP-0001 or EOP-0005 Enclosure 12.

Booth Instructions	Time	Position	Applicant's Actions or Behavior

NOTE:
When T7 is activated, CRDM malfunctions are deleted allowing for control rod insertion, **Do Not** insert trigger 7 until both the scram and ARI have been reset.
(i.e. SDV vent and drain are open).
 	
• When both the scram and ARI have been reset then insert T8 to allow control rods to be driven in:
  • **T7 CRDM3641, STUCK, DELETE 00:00:01,** CONTROL ROD 3641 FAILURES
  • **T7 CRDM4041, STUCK, DELETE 00:00:01,** CONTROL ROD 4041 FAILURES
  • **T7CRDM4045, STUCK, DELETE 00:00:01,** CONTROL ROD 4045 FAILURES
		ATC	• When directed, or when condenser vacuum is in the unacceptable region of the graph in AOP-0005, insert a manual SCRAM by placing the reactor mode switch to shutdown
			• Recognize and report 3 rod out ATWS
			• Provide a ATWS (SCRAM) Report.
			• Restore and maintain RPV water level:
			-20 to 51 inches with Feed & Condensate.
			• Complete actions of AOP-1, Reactor Scram and AOP-2, Turbine Trip.
			• Reset scram utilizing AOP-0001 / EOP-0005 Enclosure 12.
			  • Place C71A-S4A, B, C, D to bypass if performing AOP-0001, REACTOR SCRAM, Scram Reset
			  • Reset the scram by placing C71A-S5A, B, C, D to reset
			• Insert Control Rods

Booth Instructions	Time	Position	Applicant's Actions or Behavior
		ATC	**CRITICAL TASK**: **All control rods fully inserted prior to exiting EOP-1A, RPV CONTROL, ATWS** Actions necessary for success include: • EOP-0005, Enclosure 12, DEFEATING RPS AND ARI LOGIC TRIPS • EOP-0005, Enclosure 14, DEFEATING RC&IS INTERLOCKS AND EMERGENCY CONTROL ROD INSERTION DATA SHEET **Note for Examiners: They must either scram and reset three times to get all the rods in or complete Enclosure 14 and manually drive each one in to be successful).**
		BOP	• Perform the following actions per AOP-0003, AUTOMATIC ISOLATIONS • Use Attachment 1, Signal to Actuation/Isolation Relationship to determine which actuations and isolations should have taken place (Step 5.7) • Verify each component from Attachment 2, Isolation Valve Check off Sheet, is in its isolate position, and place an initial in the isolated/initials column of Attachment 2, Isolation Valve Check off Sheet • Install EOP-0005 Enclosures as directed by SRO.

Booth Instructions	Time	Position	Applicant's Actions or Behavior

Event T8 initiated at Lead Evaluator discretion.
T8 MSS005K, Delay 00:02:00, SRV 1B21*F051C FAILS OPEN
 	
ROLE PLAY
As Back Panel Operator, accept request to perform EOP-0005 enclosures and other back panel operations as follows:
• B21-F051C Div 2 switch operation.
  • **T29 MSS012** OPERATE SRV 'B' SOLENOID SWITCHES
• B21-F051C fuse removal.
  • **T30 MSS009, OUT,** MAIN STEAM DIV 1 SRV F051C FUSE
  • **T30 MSS016, OUT,** MAIN STEAM DIV 2 SRV F051C FUSE
		ATC / BOP	Annunciator: P601-19A-A09, Main Steam SRV Open
			Indications:
			Various RPV and Main Steam Line pressure meters indicate a lowering pressure beyond where BPVs should be controlling pressure (< 900 psig)
			SRV 51C control switch red light on/green light off
			• Recognize and report open SRV
			• Recognize and Report an uncontrolled pressure drop in the RPV due to the stuck open SRV.

		SRO	• Accept report of open SRV • Re-enter EOP-0002 on suppression pool temperature if ≥ 100F; direct EOP-2 actions: • Place RHR-B in Suppression Pool Cooling • Assign AOP-0035, SAFETY RELIEF VALVE STUCK OPEN. **CRITICAL TASK**: **SRV closed prior to exceeding the heat capacity temperature limit (HCTL)**

Booth Instructions	Time	Position	Applicant's Actions or Behavior
		BOP	• Perform actions of AOP-0035, SAFETY RELIEF VALVE STUCK OPEN. • Place the B21-F051C switch to OPEN. • Take control switch for B21F051C to OFF; cycle switch to OPEN and back to OFF. • Back panel (phone) step 5.5.3 of AOP-0035 to cycle switch twice. • Monitor Suppression Pool Temperature. • When directed, place RHR B in Supp Pool Cooling • Throttle open E12-F068B to establish ≤ 5800 gpm service water flow • Start E12-C002B • Open E12-F024B, Test Return to Supp Pool • Back panel (phone) step 5.7 of AOP-35 Attach 1 to remove fuses. • Determine that SRV closes by using steam flows, etc.

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event initiated upon receipt of level 3 signal following Mode switch operation. **RHS-AOV64P, 100,** RHS-AOV64 SPC SUCTION ISOL VALVE POSITION **T25 RHS-AOV64P, 100, DELETE 00:00:01,** RHS-AOV64 SPC SUCTION ISOL VALVE POSITION **ROLE PLAY** As WMC/Maintenance, accept request for help to investigate		BOP	Indications: The control switch for RHS-AOV64 red light is on and the green light is off.
		SRO	• Direct isolation of RHS-AOV64
		BOP	• Recognize and report failure of RHS-AOV64 to isolate. (found during implementation of AOP-0003) • Isolate RHS-AOV64 by taking control switch to CLOSE • Report RHS-AOV64 isolated
FREEZE Termination is at the discretion of the Chief Examiner.	**Critical Task Review:** **1. SRV closed prior to exceeding the heat capacity temperature limit (HCTL)** **2. All control rods fully inserted prior to exiting EOP-1A, RPV CONTROL, ATWS**		

VI. TERMINATION CRITERIA:

The exercise should be terminated when the performance objectives have been achieved or the operators are unable to diagnose and respond effectively to the scenario.

The following conditions provide an indication of performance objective achievement for this scenario; Critical Tasks are indicated with an *:

- RHR 'A' restored to standby lineup with the exception of the pump being tripped.
- Feedwater level control operating automatically in single element.
- Reactor scram inserted due to lowering vacuum.
- Level and pressure control established
- Actions taken for stuck open SRV IAW AOP-0035
- RHS-AOV64 closed
- *SRV closed prior to exceeding the heat capacity temperature limit (HCTL).
- * All control rods fully inserted prior to exiting EOP-1A, RPV CONTROL, ATWS

VII. REFERENCES

A. Plant Procedures

1. ARP-680-07A-C03, ACCUMULATOR TROUBLE
2. SOP-0031, Residual Heat Removal System
3. ARP-601-20A-C04, RHR PUMP A DISCH PRESSURE HI/LOW
4. ARP-680-03A-B08, REACTOR HIGH/LOW WATER LEVEL
5. AOP-0006. Condensate / Feedwater Failure
6. SOP-0009, Reactor Feedwater system
7. AOP-0005, Loss of Main Condenser Vacuum, Trip of Circulating Water Pump
8. AOP-0001, Reactor Scram
9. AOP-0002, Turbine Trip
10. AOP-0003, Automatic Isolations
11. AOP-0035, Stuck Open SRV
12. EOP-1, RPV Control
13. EOP-1A, RPV Control ATWS
14. EOP-2, Primary Containment Control
15. EN-OP-115, Attachment 9.8
16. OSP-0053, Emergency and Transient Response Support Procedure
17. Tech Specs

Offgoing OSM:	Oncoming OSM:	Off-Going Shift
_____ _____ (Print) KCN	_____ _____ (Print) KCN	N D ☐ ☐ Date
Reactor Power is 84% Shutting down due to leaking SRV		
RMP Step 1 has been completed and we a ready to perform Step 2 followed by monitor cases.		
B21-F051C, Safety Relief Valve leaking by causing Suppression Pool Level rise.		
Place RHR A in Suppression Pool Cooling and Reject Suppression Pool to Radwaste, Chemistry sample is good for reject of suppression pool following performance of RMP step 2a.		

SIGNIFICANT LCO STATUS	EOOS STATUS
	10.0 Green

EQUIPMENT STATUS	PROTECTED EQUIPMENT
CWS-P1D is tagged out for motor rewind.	Div 2

☐ Night Orders ☐ Standing Orders ☐ Board Walkdown ☐ Temp Alts

_____ _____
(Signature: Oncoming OSM Review Completed) KCN

Appendix D **Scenario Outline** **Form ES-D-1**

Facility: River Bend Station Scenario No.: NRC-2 IC No.: 252

Examiners: _____ Operators: _____
_____ _____
_____ _____

Initial Conditions: 100% reactor power.

Turnover Shift priorities: 1) STP-309-0203 in progress; ready to unload and shutdown the HPCS DG per step 7.3

Event No.	Malf. No.	Event Type*	Event Description
1	NA	N (SRO, BOP)	Unload the HPCS DG per STP-309-0203 Steps 7.3.1 through 7.3.4
2	ED004R zdi5(497)!=0	TS (SRO)	E22-ACB03 trips after DG output breaker opens (Tech Spec)
3 T	CCS001B CCS003C	C (SRO, BOP)	Component Cooling Water pump CCS-P1B trips and pump CCS-P1C fails to auto start (AOP-0012)
4 T	CNM004B	C (SRO,ATC)	Condensate pump CNM-P1B trips (RX) (AOP-0006)
5 T	N/A	TS(SRO)	Control Building Fire Door (CB098-10) Failure to close and latch (Tech Spec)
6 T	ED010	M (ALL)	Loss RSS#1 result in loss of normal feedwater Reactor Scram
7	RCIC002 E51MOVF013P LPCS002 RHR001A ED004Q	C (SRO, BOP)	Reduce RPV injection Sources • RCIC fails to auto start and must be manually started • RCIC Injection Valve limited to approximately 100-200 gpm flow • Loss of Low Pressure ECCS automatic injection
8	MSS001	M (ALL)	Steam Leak in Drywell Must ED on lowering water level prior to -186" RPV level Must restore RPV level with low pressure ECCS to > -186"

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Total Malfunctions (5-8) (7) E22-ACB03, CCS-P1B, CNM-P1B,CB098-10, Loss RSS#1, DW Leak, Reduce RPV injection sources

Malfunctions after EOP entry (1-2) (2) Reduce RPV injection sources, DW Leak

Abnormal Events (2-4) (2), AOP-0012, AOP-0006

Major Transients (1-2) (2) Reactor scram due to loss of normal feedwater, DW Leak

EOPs entered (1-2) (2) EOP-0001, EOP-0002.

EOP contingencies (0-2) (1) Alternate level control

Critical Tasks (2-3) (2) ED prior to RPV level going below -186"; Restore RPV water level to ≥ -186" within 30 minutes after RPV pressure reaching 200 psig"

General Scenario Outline

Event 0 - The team assumes the shift with reactor power at 100% and the division 3 diesel generator month operability surveillance test in progress.

Event 1 – The team unloads and opens the output breaker for the division 3 diesel generator (Normal evolution)

Event 2 – When the output breaker is opened the supply breaker (E22-ACB03)for the division 3 480 volt switchgear trips on overcurrent resulting in Tech Spec 3.8.9 entry and HPCS becoming unavailable

Event 3 – Next one of the operating turbine plant component cooling water pumps (CCS-P1B) trips with the standby pump (CCS-P1C) failing to auto start, the operators will manually start the standby pump to restore normal cooling water flow.

Event 4 – Following the temporary reduction in cooling water flow one the three operating condensate pumps (CNM-P1B) trips resulting in AOP-0006 entry and required power reduction to 90%

Event 5 – A report from a roving security officer results in TRM 3.7.9.6 entry for a failed fire barrier (door CB098-10)

Event 6 – A partial loss of offsite power (RSS#1) occurring resulting in a loss of the remaining condensate pumps and a loss of normal feedwater injection requiring the plant to be shutdown (Scrammed)

Event 7 – The only high pressure injection system available is RCIC and it fails to auto start. When manually started the RCIC injection valve fails to fully open result in reduced injection (around 100-200gpm).
At -143 inches water level in the RPV the Division 2 480 VAC bus loses power (EJS*SWG2B trips open) preventing injection for division 2 low pressure ECCS systems. The RHR A injection valve (E12-MOVF042A) also loses power preventing injection. The LPCS injection valve (E21-MOVF005) fails to automatically open, requiring the BOP operator to open the valve.

Event 8 – Following the scram a steam leak begins in the drywell resulting in loss of coolant accident requiring emergency depressurization due to lowering reactor water level and restoration of RPV water level utilizing low pressure injection systems.
(Critical Task to emergency depressurize prior to RPV water level dropping below -186 inches)
(Critical Task to restore RPV water level above -186 inches within 30 minutes of RPV pressure reaching 200 psig)

RIVER BEND STATION SIMULATOR SCENARIO	Number: ***RSMS-NRC-D14-2** Revision: **01** Page 1 of **28** Approximate Time: 1 Hour(s) Record Type: ***Z01.24**

TRAINING PROGRAM:

SIMULATOR TRAINING

LESSON PLAN:

***E22-S002 Fault, CCS pump failure, CNM pump failure, Loss RSS #1, RCIC start failure and injection limited, Steam Leak in Drywell**

REASON FOR REVISION:

NRC December 2014 exam

PREPARE / REVIEW:

Thomas LaPorte	0160	07-23-2014
Preparer	KCN	Date
Dave Bergstrom	0257	09-30-2014
Technical Review (SME)	KCN	Date
Steve Carter	0358	10-01-2014
Operations Representative	KCN	Date
Joey Clark	0260	10-18-2014
Facility Reviewer	KCN	Date

* Indexing Information

I. DESCRIPTION OF SCENARIO

This scenario begins with the plant at 93% power with HPCS tagged out for line fill pump maintenance.
Events for this scenario:

- Unloading of HPCS DG per STP-309-0203
- E22-S002 bus fault (TS)
- CCS-P1B trip with failure of CCS-P1C to auto start
- CNM-P1B trip / Rx Power reduction with flow
- CB098-10 Door Broke (TS)
- Loss of RSS#1 (Loss of normal feed)
- Reduced RPV injection Sources, RCIC flow limited, loss of Div 2 ECCS and RHR A injection valve (Loss Power)
- Steam Leak in the drywell

II. TERMINAL OBJECTIVE

1. Given a series of events in the simulator, perform actions to mitigate the consequences of the events in accordance with approved station procedures.

III. ENABILING OBJECTIVES

1. Unload the HPCS diesel per STP-309-0203
2. Respond to Ground Fault on E22-S002 per ARP-601-
3. Respond to trip of CCS-P1B per AOP-0012
4. Respond to trip of CNM-P1B per AOP-0006
5. Respond to loss of RSS#1 per OSP-0053
6. Respond to RCIC auto start failure per OSP-0053
7. Respond to Leak in the Drywell per OSP-0053

IV. INITIAL CONDITIONS/SHIFT TURNOVER

INITIAL CONDITION	TRAINING FOCUS	EQUIPMENT STATUS	REQUIRED DOCUMENTS
IC #252		**Power:** 100% **Core:** Xenon equilibrium **Equipment OOS:** None **STPs Due:** None **LCOs:** 3.8.1 Condition C **Evolutions in progress:** STP-309-0203 in progress, ready to unload and shutdown the HPCS DG **Problem/Lit annunciators:** None	STP-309-0203

V. GENERAL INSTRUCTIONS

Instructions	MFS-OR-REM-SCH	Notes
Simulator Setup	**Div 3 diesel generator running tied to the grid.**	
Check Boards for Equip Tags Check procedures and hard cards for marks Check Gauges/Meters for marks. Make marked-up copies of STPs available. Check that the Shutdown Plan is appropriate for this scenario. Check power <3090 MWth Bring up Insight	**Malfunctions** **T2, DED004R,** E22*S002 BUS FAULT (480 VAC) **T3, CCS001B,** TPCCW PUMP B TRIP, **CCS003C,** CCS-P1C FAILURE TO AUTO START **T4, CNM004B,** CONDENSATE PUMP B TRIP **T6, ED010,** RSS TRANSFORMER , XSR1E LOCKOUT **RCIC002,** RCIC FAILS TO AUTO START **T7, E51MOVF013P, FV 2,** E51-MOV12, POSITION **T8, MSS001, FV 1000, Delay 00:01:00, Ramp 00:10:00,** STEAM LEAK IN THE DRYWELL **RHR001A,** RHR A LOOP INJECTION VALVE, F042A FAILS **LPCS002,** LPCS INJECTION VALVE, F005 FAILS TO OPEN	

Instructions	MFS-OR-REM-SCH	Notes
	T26 LPCS002, DELETE 00:00:01, LPCS INJECTION VALVE, F005 FAILS TO OPEN **T25 ED004Q,** EJS*SWG2B BUS FAULT (480 VAC) **<u>Remote Functions</u>** **T27, ECCS002, OUT,** HPCS PUMP BREAKER **T28, RPS005,** RPS ALTERNATE EPA BREAKERS DIV 1 **T29,BKR069,** SCI-PNL01/02 SELECT SWITCH, 1SCI-TRS1 **T30, EOP032A,** EOP-5 ENCL32 (A SDC INJECTION VALVES) **T30, EOP032B,** EOP-5 ENCL32 (B SDC INJECTION VALVES) **T19 EOP033, JUMPRD,** EOP-5 ENCL 33 (RCIC AREA HIGH TEMPERATURE) **T18 EOP018, JUMPRD,** EOP-5 ENCL 18 (FWP LEVEL 8 TRIPS) **T16 EOP016, JUMPRD,** EOP-5 ENCL 16 (CONTAINMENT IAS ISOL) **T12 EOP012A, JUMPRD,** EOP-5 ENCL 12 (RPS SIGNALS) **T20 EOP020, JUMPRD,** EOP-5 ENCL 20 (DRYWELL COOLING)	

Instructions	MFS-OR-REM-SCH	Notes	
	Overrides **DI_NNS-ACB24, NEUTRAL,** 808-87C 1NNS SWGR 1C/1A BRKR SW **Event Triggers** **T 2, zdi5(497)! =0,** HPCS DG OUTPUT BKR OPEN **T 7, zdi5(534),** E51-F013 TO OPEN **T 8,** Mode Switch not in run **T 25,** Wide Range Level < -142” **T 26, zdi5(538)** E21-MOVF005 to open		
Event 0	**RUN**	CREW:	Board walk down / Turnover.

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event initiated by crew from turnover sheet. **ROLE PLAY:** As control building operator, report a full set of PEP-0026 data has been collected		SRO	• Direct the UO to perform STP-309-0203.
		BOP	• Accept the direction to perform STP-309-0203 • Perform STP-309-0203 Section 7.3.1 through 7.3.4 : • Reduce HPCS diesel generator load • Reduce loading to 1300 KW in 60-90 sec • Operate at 1300 KW for 60-90 sec • Reduce loading to 200 KW in 60-90 sec • Record time load reduced below 2525KW • Open HPCS diesel generator output breaker Examiner Note: opening the output breaker initiates the next event

Booth Instructions	Time	Position	Applicant's Actions or Behavior

Event initiated when the generator output breaker is opened.
 	
T2, DED004R, E22*S002 BUS FAULT (480 VAC)
 	
ROLE PLAY:
As WMC/Maintenance/Engineering, accept request to investigate / repair E22-S002 Bus Fault.
As building operator if requested to rack out / pull control power fuses for HPCS pump wait 5 minutes then insert **T27, ECCS002, OUT,** HPCS PUMP BREAKER and report completion.
 	
As Control Building operator if request to adjust HPCS DG speed droop to 0 then report that speed droop has been adjusted to 0
 	
As Chemistry acknowledge that HPCS DG has been secured.
		SRO	Annunciator: p601-16A-E03, HPCS System Ground
			P601-16A-B03, Div III 4KV Bus AUTO TRIP
			P601-16A-G04, HPCS Inject Line Pressure Low
			Various others
			Indications: breaker indication for E22-ACB03 = tripped
			HPCS Line Fill Pump = no lights
			
			• Acknowledge loss of E22-S002 bus
			
			• Enter Tech Spec 3.8.9, Distribution Systems-Operating
			  • Condition E, One or more Div 3 AC or DC electrical power distribution subsystems inoperable; Declare HPCS system and SSW Pump 2C inoperable Immediately
			
			• Enter Tech Spec 3.5.1, ECCS-Operating
			  • Condition B1, HPCS System INOP; Verify RCIC system operable within 1 hour AND
			  • Condition B2, Restore HPCS System to OPERABLE status within 14 days
			
			• Review Tech Spec 3.7.1, SSW System and Ultimate Heat Sink (UHS)
			  • Condition E, One SSW subsystem with one pump inop; Restore pump to operable status within 30 days

Booth Instructions	Time	Position	Applicant's Actions or Behavior
As Control Building operator accept direction to complete performance of STP-309-0203.			• Direct HPCS pump breaker to be racked out following receipt of HPCS low pressure alarm • Direct securing HPCS DG per STP-309-0203

		BOP	• Recognize and report loss of E22-S002 bus
			• Respond to ground per ARP-601-16A-E03
			Dispatch operator to investigate (check for evidence of fire)
			• Direct control building operator to rack out HPCS pump breaker **or** remove control power fuses per SOP-0030 precaution and limitation 2.3, upon receipt of HPCS low pressure alarm ARP-601-16A-G04.
			• Secure Division 3 EDG per step 7.3.7 of STP-309-0203
			  • Direct building operator to set speed droop to 0.
			  • Adjust HPCS INCOMING voltage to 4.16 KV using the HPCS Diesel Generator Voltage Regulator Control Switch

Booth Instructions	Time	Position	Applicant's Actions or Behavior
			• Adjust HPCS DG frequency to 60 Hz using the HPCS Diesel Generator Governor Control Switch • Place Synch Switch E22-ACB01 to OFF • Stop the Division 3 EDG by momentarily placing the HPCS DSL ENG CONTROL switch to STOP.

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event trigger T3 initiated at Lead Evaluator discretion. **T3, CCS001B,** TPCCW PUMP B TRIP **CCS003C,** CCS-P1C FAILURE TO AUTO START **ROLE PLAY:** As WMC / FIN / I&C, accept request to investigate / repair trip of CCS-P1B As the turbine building operator, accept the direction to investigate the trip of CCS-P1B, after approximately 5 minutes report that the outboard motor bearing feels hot.			Annunciators: p870-55A-E01, Turb Cmpnt Clg Water Pump Brkr Auto Trip p870-55A-E02, Turb Cmpnt Clg Water Pump Low Disch Press p870-55A-G02, Turb Cmpnt Clg Water Pump 1B Overload Indications: CCS-P1B yellow trip light on CCS-P1C green light on / red light off CCS Header Pressure < 96 psig (CCS-PI 116 on p870)
		SRO	• Acknowledge trip of CCS-P1B • Direct start of CCS-P1C • Enter AOP-0012

Event # 3 **Event Description**: **Trip of Component Cooling Water Pump CCS-P1B with failure of standby pump CCS-P1C to auto start**.

Booth Instructions	Time	Position	Applicant's Actions or Behavior

As the control building operator, accept the direction to investigate the trip of CCS-P1B after approximately 5 minutes report that the breaker appears to have tripped on over current.		BOP	• Recognize and report trip of CCS-P1B
			• Respond to trip of CCS-P1B per ARP-870-55A-E01
			  • Start CCS-P1C
			• Implement actions of AOP-0012
			  • Attempt to start a least on CCS Pump (already performed)
			  • Dispatch an operator to investigate

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event trigger T4 initiated at Lead Evaluator discretion. **T4, CNM004B,** CONDENSATE PUMP B TRIP **ROLE PLAY:** As WMC / FIN / maintenance, accept request to investigate / repair condensate pump B issue As the turbine building operator, accept the direction to investigate the trip of the condensate pump, Call back in 5 minutes to report that there is smell of hot insulation coming from the pump motor. As the control building operator, accept the direction to investigate the trip of the condensate pump, Call back in 5 minutes to report that there is an 86 lockout and over current trips.			Annunciators: P680-2A-A03, Condensate Pump Auto Trip P680-2A-B03, RX Feed Pumps Low Suction Press P680-2A-C03, Condensate Pump P1B Overload Indications: Condensate Pump B amps = 0 Condensate Pump B disch pressure lowering / feed pump suction pressure alarm RPV Water Level lowering
		SRO	• Acknowledge trip of condensate pump B • Direct power reduction to 90% (with Recirc flow) per OSP-0053 Trigger Point • Enter AOP-0006 • Notify WMC / FIN / Maintenance to investigate / repair condensate pump B issue.

Booth Instructions	Time	Position	Applicant's Actions or Behavior

		ATC	• Recognize and report trip of condensate pump B
			• Implement AOP-0006
			  • Lower reactor power to 90% with recirc flow to mitigate the level transient
			  • Possible Reactor High water level annunciator P680-03A-B08
			• Respond to CNM-P1B trip per ARP-680-02A-A03
			  • Reduce Reactor power as necessary to stay within capability of number of running condensate pumps
			  • Dispatch personnel to determine cause of trip and notify OSM/CRS
			• Place condensate pump B in a shutdown status per SOP-0007
			  • Depress the Close pushbutton for the Pump Disch Valve
			  • Inform Aux Control Room of Condensate System status

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event trigger T5 initiated at Lead Evaluator discretion. **GAITRONICS CALL** As security officer, call the control room on Gaitronics line 3 and report that you have just passed through control bldg door CB-098-10 located between the two switchgear rooms and that the door would not close and latch behind you. **ROLE PLAY:** As WMC / FIN / maintenance, accept request to investigate / repair CB-098-10 Door issue As the control building operator, accept the direction to investigate CB098-10 Door issue wait 5 minutes and report that the door will not close there is something wrong with the closing mechanism.		SRO	• Acknowledge report of CB098-10 door issue • Enter Tech Spec TR 3.7.9.6, Fire Rated Assemblies • Condition A.1, One or more of the above required fire-rated assemblies or sealing devices inoperable; Establish a continuous fire watch on at least one side of the affected assembly or sealing device within 1 hour OR Condition A.2.1, Verify the OPERABILITY of fire detectors on at least one side of the inoperable assembly or sealing device within 1 hour AND Condition A.2.1, Establish an hourly fire watch patrol within 1 hour • Establish fire watch for CB098-10

Booth Instructions	Time	Position	Applicant's Actions or Behavior
ROLE PLAY: As security accept request to establish fire watch for CB098-10		BOP	• Take report of CB098-10 door issue and inform the control room supervisor

Booth Instructions	Time	Position	Applicant's Actions or Behavior

Event trigger T6 is initiated at Lead Evaluator discretion.
T6, ED010, RSS TRANSFORMER , XSR1E LOCKOUT
 	
ROLE PLAY
As WMC / FIN / I&C, accept request to investigate / repair loss of RSS#1 issue
 	
As the control building operator, accept the direction to investigate the loss of RSS #1
 	
As building operator accept request to reset alternate EPA breaker, wait 5 minutes then insert **T28, RPS005,** RPS ALTERNATE EPA BREAKERS DIV 1, and report that EPA breakers are reset.
 	
As building operator accept request to swap SCI source, wait 5 minutes then insert **T29,BKR069,** SCI-PNL01/02 SELECT SWITCH, 1SCI-TRS1 and report SCI source has been swapped.
 	
As the outside operator, accept the direction to investigate the loss of RSS #1
		SRO	• Acknowledge loss of RSS#1
			• Direct actions for Loss of RSS#1 per OSP-0053 Hard Card
			
			• Direct Implementation of:
			  • AOP-0001, REACTOR SCRAM
			  • AOP-0002, MAIN TURBINE AND GENERATOR TRIPS
			  • AOP-0003 AUTOMATIC ISOLATIONS
			
			• Notify WMC / FIN / Maintenance to investigate / repair RSS#1 issue.

		ATC	• Recognize and report loss of RSS#1and loss of normal feedwater • Implement AOP-0001, REACTOR SCRAM: • Place C71A-S1, Reactor System Mode Switch, to SHUTDOWN

Booth Instructions	Time	Position	Applicant's Actions or Behavior
ENCLOSURES: **T18 EOP018, JUMPRD,** EOP-5 ENCL 18 (FWP LEVEL 8 TRIPS) **T16 EOP016, JUMPRD,** EOP-5 ENCL 16 (CONTAINMENT IAS ISOL) **T12 EOP012A, JUMPRD,** EOP-5 ENCL 12 (RPS SIGNALS) **T19 EOP033, JUMPRD,** EOP-5 ENCL 33 (RCIC AREA HIGH TEMPERATURE)			• Check all control Rods are fully inserted • ATC announces "SCRAM REPORT" • Select and insert the SRM and IRM detectors • Reset the Scram • Implement AOP-0002, MAIN TURBINE AND GENERATOR TRIPS: • Verify Main Turbine has tripped • Verify Bypass Valves and drains are controlling RPV pressure • Verify Main Generator has tripped (Output Breakers Open)

Booth Instructions	Time	Position	Applicant's Actions or Behavior

		BOP	• Dispatch building operators to investigate loss of RSS #1.
			• Initiate RCIC to establish injection to the RPV (OK to perform during scram report)
			• Implement AOP-0003, AUTOMATIC ISOLATIONS
			  • Use Attachment 1, Signal to Actuation/Isolation Relationship to determine which actuations and isolations should have taken place
			  • Verify each component from Attachment 2, Isolation Valve Check off Sheet, is in its isolate position, and place an initial in the isolated/initials column of Attachment 2, Isolation Valve Check off Sheet.

Event # 7 **Event Description**: **Reduce RPV Injection Sources**

- **RCIC Fails to Auto start;**
- **RCIC Injection Valve Limited to approximately 100-200 gpm**
- **Loss of Low Pressure ECCS automatic injection**

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event 7 is initiated concurrently with Event 5. **RCIC002,** RCIC FAILS TO AUTO START **T7 E51MOVF013P, FV 2,** E51-MOV13, POSITION **RHR001A,** RHR A LOOP INJECTION VALVE, F042A FAILS **LPCS002,** LPCS INJECTION VALVE, F005 FAILS TO OPEN **T25 ED004Q,** EJS*SWG2B BUS FAULT (480 VAC) **T30, EOP032A,** EOP-5 ENCL32 (A SDC INJECTION VALVES) **T30, EOP032B,** EOP-5 ENCL32 (B SDC INJECTION VALVES) **ROLE PLAY** As reactor building operator acknowledge request to manually open RCIC discharge valve and after 5 minutes report that you are unable to open the valve		SRO	• Acknowledge failure of RCIC to auto start and discharge flow limitations • Direct start of RCIC. • Notify WMC / FIN / Maintenance to investigate / repair RCIC issues. • Direct installation of EOP-0005 Enclosure 32, DEFEATING SDC INJECTION VALVES ISOLATION INTERLOCKS
		BOP	• Recognize and report failure of RCIC to auto start • Manually initiate RCIC • Recognize and report RCIC flow limitations (100-200 gpm) following manual initiation

Booth Instructions	Time	Position	Applicant's Actions or Behavior
As building operator accept direction to manually open Low Pressure ECCS system injection valves, wait approximately 10 minutes and report that you are unable to open the valves. As WMC/FIN/Maintenance acknowledge request to investigate / repair RCIC initiation and flow issues.			• Direct reactor building operator to manually open RCIC discharge valve per EN-OP-115 Section 5.4 Manual Control Of Automatic Systems • Recognize and report loss of EJS-SWG2B, DIV 2 480VAC SWITCHGEAR • Recognize and report loss of Power to E12-MOVF042A, RHR A INJECTION VALVE • Recognize and report failure of E21-MOVF005, LPCS INJECTION VALVE to automatically open • Manually Open E21-MOVF005 to inject into the RPV

Scenario # 2 Revision # 0			Page 22 of 28
Event # 7 Event Description: Reduce RPV Injection Sources • RCIC Fails to Auto start; • RCIC Injection Valve Limited to approximately 100-200 gpm • Loss of Low Pressure ECCS automatic injection			
Booth Instructions	**Time**	**Position**	Applicant's Actions or Behavior
			Critical Task: • **Emergency Depressurize prior to RPV level going below -186 inches** • **Restore and maintain RPV water level to >= -186 within 30 minutes after RPV pressure reaching 200 psig**

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event trigger T8 is initiated when the mode switch is taken out of the RUN position. **T8, MSS001, FV 1000, Delay 00:01:00, Ramp 00:10:00,** STEAM LEAK IN THE DRYWELL **ENCLOSURES**: **T20 EOP020, JUMPRD,** EOP-5 ENCL 20 (DRYWELL COOLING)			**Annunciators:** H13-P680/06A/C05, DRYWELL HIGH/LOW PRESSURE H13-P680/06A/B05, NSSS INIT DRYWELL HIGH PRESSURE **Indications:** Rising Drywell pressure as indicated on SPDS displays
		SRO	• Recognize leak in the drywell • Direct implement OSP-0053 Leakage Strategies • Enter and direct actions of EOP-0002
		ATC	• Implement OSP-0053 Leakage Strategies: • Lower pressure to minimize effects of the leak • Attempt to identify and isolate the leak • Trip Reactor Recirc pumps when cooling isolates

Booth Instructions	Time	Position	Applicant's Actions or Behavior
		BOP	• Implement OSP-0053 Leakage Strategies: • Verify ECCS initiation and isolations for 1.68 psid in the drywell • Attempt to identify and isolate the leak • Perform actions as directed to support EOP-0002: • Install Enclosure 20 when directed • Place control switches for all tripped Drywell Unit Coolers to OFF • Open SWP MOV4A/B and SWP-MOV5A/B • Close breaker EJS-ACB25 and EJS-ACB66 • Start a minimum of two drywell unit coolers

Termination is at the discretion of the Chief Examiner.	**FREEZE**	**<u>Critical Task Review</u>:** **1. ED prior to RPV level going below -186 inches** **2. Restore and maintain RPV water level to >= -186 within 30 minutes after RPV pressure reaching 200 psig**

VI. TERMINATION CRITERIA:

The exercise should be terminated when the performance objectives have been achieved or the operators are unable to diagnose and respond effectively to the scenario.

The following conditions provide an indication of performance objective achievement for this scenario; Critical Tasks are indicated with an *:

- Division 3 DG unloaded
- CCS-P1C running
- Reactor Power lowered after Condensate Pump trip
- Tech Specs entered for Div 3 Bus Fault event and for the Control Building Fire Door
- RCIC initiated
- *Emergency Depressurized before RPV water level lowers below -186 inches
- *Restored and maintaining RPV water level to > = -186 within 30 minutes after RPV pressure reaches 200 psig

VII. REFERENCES

A. Plant Procedures

1. STP-309-0203, Division 3 Diesel Generator Operability Test
2. AOP-0012, Loss of Turbine Plant Component Cooling Water
3. ARP-601-16A-G04
4. ARP-870-55A-E01
5. ARP-601-16A-G02
6. AOP-0006, Condensate / Feedwater Failures
7. SOP-0006, Condensate System
8. Tech Specs
9. EN-OP-115, Attachment 9.8
10. AOP-0001, Reactor Scram
11. AOP-0002, Main Turbine and Generator Trips
12. AOP-0003, Automatic Isolations
13. EOP-1, RPV Control
14. EOP-2, Primary Containment Control
15. OSP-0053, Emergency and Transient Response Support Procedure

Offgoing OSM:	Oncoming OSM:	Off-Going Shift
_____ _____ (Print) KCN	_____ _____ (Print) KCN	N D ☐ ☐ Date
STP-309-0203 in progress, Ready to unload and secure the Division 3 diesel generator per Step 7.3 STP-000-0102 due in 6 hours.		
NPS busses are being supplied from preferred transformers due to questionable oil sample on STX-XSN1A normal station transformer A.		
Reactor Power is 100%		

SIGNIFICANT LCO STATUS	EOOS STATUS
T.S. 3.8.1 Condition C, While Division 3 DG is tied to the grid for testing.	8.7 Yellow
EQUIPMENT STATUS	**PROTECTED EQUIPMENT**
	Division 1 and RCIC

☐ Night Orders ☐ Standing Orders ☐ Board Walkdown ☐ Temp Alts

_____ _____
(Signature: Oncoming OSM Review Completed) KCN

Appendix D **Scenario Outline** **Form ES-D-1**

Facility: River Bend Station Scenario No.: NRC-3 IC No.: 253

Examiners: _____ Operators: _____
_____ _____
_____ _____

Initial Conditions: 93% reactor power. RCIC tagged out for Line Fill Pump Maintenance.

Turnover Shift priorities: (1) Swap Stator Water Cooling Pumps (for tagout of GMC-P1A);
(2) Raise Reactor Power IAW RMP (using flow)

Event No.	Malf. No.	Event Type*	Event Description
1	NA	N (SRO,BOP)	Swap Stator Water Cooling Pumps (from A to B)
2	NA	R (ATC)	Raise Reactor Power with Flow
3 T	P863_75A:F_6	I (SRO,BOP)	SSW SWGR Room Temp Switch, HVY-ESX25B fails high
4 T	B21005	TS (SRO)	RPV pressure transmitter B21-PTN078A, fails high (TS)
5 T	GMC002B GMC001A	C (SRO,BOP)	Trip of Stator Water Cooling Pump B, Standby pump fails to start
6 T	RPS003A	C (SRO,BOP)	Loss of RPS-A (AOP-0010)
7	SWPMOV4AP	TS (SRO)	Failure to isolate (SWP-MOV 5B) (TS)
8 T	GMC003A RPS-001B RPS001C	M (ALL)	Shear of Stator Water Cooling Pump A Shaft – Requires Scram RPS fails to Automatically and Manually Scram - Rods inserted by ARI
9	MGEN003	C (ATC,BOP)	Main Generator Reverse Power Relay Failure
10	CNM006 HPCS002	C (SRO,BOP)	Condensate Filter High D/P – Loss of Feed (recoverable) HPCS injection valve fails to open

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Total Malfunctions (5-8) (8)HVY-ESX25B fails high GMC-B Trip, Press Transmitter, RPS-A, SWPMOV5B failure to isolate, GMC-A shear, Reverse Power Failure, Loss of Feed

Malfunctions after EOP entry (1-2) (2) Reverse Power, HPCS inject failure

Abnormal Events (2-4) (3), AOP-0010, AOP-0001, AOP-0002

Major Transients (1-2) (1) Reactor scram with Loss of Stator Water Cooling

EOPs entered (1-2) (2) EOP-0001

EOP contingencies (0-2) (1) EOP-0001, Alternate Level Control

Critical Tasks (2-3) (2) Initiate ARI; RPV Level Restored

December 2014 NRC Exam

General Scenario Outline

Event 0 – The team assumes the shift with reactor power 93% following a control rod sequence exchange. RCIC is out of service for line fill pump maintenance.

Event 1 – The team alternates the generator stator cooling water pump in preparation for oil change on the A pump.

Event 2 – Following the stator pump swap the team will raise reactor power with recirculation flow as directed by reactor engineering to 97%

Event 3 – HVY-ESX25B temperature switch fails high bringing in switchgear high temperature annunciator and failing to start HVY-FN25A and HVY25B the operator will start the fans per the alarm response procedure

Event 4 – Next the A RPS RPV pressure transmitter fails high causing a ½ scram condition resulting in Tech Spec 3.3.1.1 entry

Event 5 – The B stator cooling water pump trips next with failure of the A standby pump to auto start. The resulting turbine-generator run back is stopped when the operators manually start the A pump.

Event 6 – Following recovery of stator cooling a loss of RPS A occurs requiring the entry into the abnormal operating procedure and recovery of isolated systems

Event 7 – Primary containment isolation SWP-MOV5B fails to automatically isolate, requiring entry into T.S. 3.6.1.3

Event 8 – At this time the shaft of the restarted stator cooling water pump A shears resulting in a turbine generator run back. With no stator cooling water available the team is required to shutdown the reactor (Scram). An RPS failure then requires alternate rod insertion to be initiated to insert all control rods.
(Critical Task to imitate ARI prior to RPV level two)

Event 9 – Following reactor shutdown the main generator fails to trip on reverse power. The team will transfer house power prior to opening the main generator output breakers

Event 10 – Following reactor shutdown the condensate full flow filters become clogged resulting in a loss of normal feedwater injection. The HPCS injection valve fails to open and the condensate full flow filter bypass valve must be manually opened to recover feed water injection
(Critical Task to restore and maintain RPV water level to > -186 inches prior to ED required at -186 inches)

RIVER BEND STATION SIMULATOR SCENARIO	Number: ***RSMS-NRC-D14-3** Revision: **01** Page 1 of **28** Approximate Time: 1 Hour(s) Record Type: ***Z01.24**

TRAINING PROGRAM:

SIMULATOR TRAINING

LESSON PLAN:

***RPS Press Transmitter Fail, Trip of Stator Cooling Pump, Loss of RPS, Loss of Stator Cooling, Loss of High Pressure Feed**

REASON FOR REVISION:

NRC December 2014 exam

PREPARE / REVIEW:

Thomas LaPorte	0160	07-23-2014
Preparer	KCN	Date
Dave Bergstrom	0257	09-30-2014
Technical Review (SME)	KCN	Date
Steve Carter	0358	10-01-2014
Operations Representative	KCN	Date
Joey Clark	0260	10-18-2014
Facility Reviewer	KCN	Date

* Indexing Information

I. DESCRIPTION OF SCENARIO

This scenario begins with the plant at 93% power with RCIC tagged out for line fill pump maintenance.
Events for this scenario:

- Swap Stator Water Cooling Pumps per SOP
- Raise Reactor Power with flow
- Respond to HVY-ESX25B, Standby Cooling Tower Switchgear Room Temperature switch failure
- RPV Pressure Transmitter B21-PTN078A, fails high (Tech Spec)
- Trip of Stator Cooling Pump B
- Loss RPS A
- Stator Cooling Pump A shaft shear – Requires Scram
- Main Generator Reverse Power Relay Failure
- Condensate Filter High D/P – Loss of Feed
- SWP-MOV5B fails to isolate (Tech Spec)

II. TERMINAL OBJECTIVES

1. Given a series of events in the simulator, perform actions to mitigate the consequences of the events in accordance with approved station procedures.

IV. INITIAL CONDITIONS/SHIFT TURNOVER

INITIAL CONDITION	TRAINING FOCUS	EQUIPMENT STATUS	REQUIRED DOCUMENTS
IC #253		**Power:** 93% **Core:** Xenon equilibrium **Equipment OOS:** RCIC tagged out for line fill pump Maintenance. **STPs Due:** None **LCOs:** None **Evolutions in progress:** Swap Stator Cooling Water Pumps (for tagout of GMC-P1A), Raise Reactor Power IAW RMP (using flow). **Problem/Lit annunciators:** None	RMP

V. GENERAL INSTRUCTIONS

Instructions	MFS-OR-REM-SCH	Notes
Simulator Setup	**Malfunctions**	
Check Boards for Equip Tags Check procedures and hard cards for marks Check Gauges/Meters for marks. Make marked-up copies of STPs available. Check that the Shutdown Plan is appropriate for this scenario. Check power <3090 MWth Bring up Insight	**T3, B21005,** RPV PRESS TRANSMITTER B21-PTN078A FAILURE **T4, GMC002B,** STATOR COOLING WATER PUMP B TRIP **GMC001A,** GMC-P1A FAILURE TO AUTO START **T5, RPS003A,** LOSS OF POWER TO RPS CHANNEL A **SWPMOV5BP, 100,** SWP-MOV4A, POSITION **T7, GMC003A,** STATOR COOLING WATER PUMP A SHEARED SHAFT **T7 RPS001B,** RPS FAILS TO SCRAM – AUTO SIGNALS ONLY **RPS001C,** RPS FAILS TO SCRAM – MANUALLY **MGEN003,** MAIN GENERATOR REVERSE POWER RELAY FAILURE **T9, CNM006, FINAL VALUE 100,** CONDENSATE FILTER HIGH DIFFERENTIAL PRESS **HPCS002,** HPCS INJECTION VALVE F004 FAILS TO OPEN **T30, CNM006, FINAL VALUE 0,** CONDENSATE FILTER HIGH DIFFERENTIAL PRESS	

Instructions	MFS-OR-REM-SCH	Notes	
	Remote Functions **T27 TGS009, RESET, Delete 00:00:02,** RESET H2 CLG/STATOR CLG SEAL OIL ALARM **T28, NIS001,** NI CABINET 20 VDC POWER SUPPLIES **T29 TGS009, RESET Delete 00:00:02**, RESET H2 CLG/STATOR CLG SEAL OIL ALARM **T18 EOP018, JUMPRD,** EOP-5 ENCL 18 (FWP LEVEL 8 TRIPS) **T16 EOP016, JUMPRD,** EOP-5 ENCL 16 (CONTAINMENT IAS ISOL) **T12 EOP012A, JUMPRD,** EOP-5 ENCL 12 (RPS SIGNALS) **T20 EOP020, JUMPRD,** EOP-5 ENCL 20 (DRYWELL COOLING) **T21 p863_75A:F_6, FAIL ON,** STBY SERVICE WTR SWGR ROOM B EXTREME HIGH TEMP **Overrides** **NONE** **Event Triggers** **T9, Mode switch not in run**		
Event 0	**RUN**	CREW:	Board walk down / Turnover

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event initiated by crew from turnover sheet.		SRO	• Direct the UO to perform SOP-0020 Section 5.2.
ROLE PLAY: As turbine building operator, report GMC B pump start checks are satisfactory As turbine building operator, if requested report post pump start checks are satisfactory As turbine building operator accept direction to reset the Stator Cooling Alarm on panel GMC-PNL101, After 1 minute insert trigger **T27, TGS009**, to reset the Stator Cooling Alarm and report that a pressure control valve lockup occurred during pump swap as expected and has been reset.		BOP	• Accept the direction to perform SOP-0020 Section 5.2. • Perform SOP-0020 Section 5.2: • Depress GMC-SCPM-B Start Pushbutton • Depress GMC-SCPM-A Stop Pushbutton • Verify GMC-PIEPR-15 reads > 49psig
		ATC	• Respond to expected annunciator per ARP-680-15A-A06 by dispatching an operator to panel GMC-PNL101 to observe local alarms and reset the alarm.

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event initiated by RE providing EN-RE-215 RMP flow step. **ROLE PLAY:** As reactor engineer provide next sequential EN-RE-215 RMP flow step to the SRO. As reactor engineer, if questioned report that monitored and predictor cases for the reactivity manipulation have been run and there are no identified challenges to core thermal limits.		SRO	• Direct the ATC to perform RMP flow step to raise reactor power
		ATC	• Accept the direction to perform RMP flow step to raise reactor power. • Perform Reactivity Maneuvering Plan flow step: • Utilize the reactor recirculation system flow control valves to raise reactor power in accordance with the RMP, GOP-0005, Power Maneuvering, and SOP-0003, Reactor Recirculation System. • Verify B33-K603A(B) M/A station is in MAN • Determine which B33-K603A(B) flow control is to be adjusted by observing loop flows on B33-R612A(B) • Note the current B33-HYVF060A(B) flow control valve position, generator load, MWt, APRMs and loop flows • Raise reactor recirculation flow by toggling momentarily B33-K603A(B) in the open direction (to the right) using slow detent while observing for servo error deviation in the positive direction.

Booth Instructions	Time	Position	Applicant's Actions or Behavior
		ATC	• Verify the servo error returns to its previous position • Observe B33-HYVF060A(B) flow control valve position, generator load, MWt, APRMs and loop flows for expected changes • Repeat until desired reactor power level is achieved

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event trigger T3 initiated at Lead Evaluator discretion. **T21, p863_75A:F_6, FAIL ON,** STBY SERVICE WTR SWGR ROOM B EXTREME HIGH TEMP **ROLE PLAY:** As back panel report HVY-ESX25B on H13-P820 shows full upscale 200F As WMC / FIN / I&C, accept request to investigate / repair issue with HVY-ESX25B		SRO	Annunciator 863-075A-F6, STBY SERVICE WTR SWGR ROOM B EXTREME HIGH TEMP • Direct start of HVY-FN2B AND HVY-FN2D STBY SVCE WTR TWR 1 FAN. • Contact work control to investigate / correct instrumentation malfunction for HVY-ESX25B

		BOP	• Recognize/report extreme high temperature alarm
			• Recognize/report failure of HVY-FN2B and HVY-FN2D to auto start.
			
			• Respond to annunciator ARP-863-75A-F06
			  • Verify Automatic Actions:
			  • Start HVY-FN2B, STBY SVCE WTR TWR 1 FAN
			
			  • Start HVY-FN2D, STBY SVCE WTR TWR 1 FAN
			
			  • Verify temperature is high on indicator for HVY-ESX25B on H13-P820
			
			  • Dispatch operator to investigate

Booth Instructions	Time	Position	Applicant's Actions or Behavior

Event trigger T21 initiated at Lead Evaluator discretion.
 	
T3, B21005, RPV PRESS TRANSMITTER B21-PTN078A FAILS HIGH
 	
ROLE PLAY:
As WMC / FIN / I&C, accept request to investigate / repair issue with B21-PTN078A As Back Panel provide indication that B21-N678A trip unit is upscale trip gross fail
		SRO	• Direct use of alternate indication to verify reactor pressure.
			
			• Enter Tech Spec 3.3.1.1, REACTOR PROTECTION SYSTEM (RPS) INSTRUMENTATION
			  • Condition A, ONE OR MORE REQUIRED CHANNELS INOPERABLE, Place channel in trip within 12 hours or place associated trip system in trip within 12 hours.
			  (System is already in trip due to transmitter failure)

		ATC	• Recognize/report failure Division 1 half scram on RPV pressure high with no single rod scrams
			
			• Verify reactor pressure <1075 psig using alternate indications.
			
			• Respond to expected annunciators ARP-680-06A-A05 and ARP-680-05A-A09
			  • Check reactor pressure indications
			  • Verify no individual rod scrams

Booth Instructions	Time	Position	Applicant's Actions or Behavior
T4, GMC002B, STATOR COOLING WATER PUMP B TRIP **GMC001A,** GMC-P1A FAILURE TO AUTO START **ROLE PLAY:** As WMC / FIN / I&C, accept request to investigate / repair As the turbine building operator, accept the direction to investigate the Stator Water Cooling Pump. Call back in 5 minutes to report that the bearing on the pump end of the motor is hot to the touch. Accept direction to reset the Stator Cooling Alarm on panel GMC-PNL101, After 1 minute insert trigger **T29, TGS009**, to reset the Stator Cooling Alarm		SRO	• Direct verification of start of the standby stator cooling water pump. • Notify WMC / FIN / Maintenance to investigate / repair GMC-SCPM-B pump issue.
		BOP	• Recognize and report trip of stator cooling water pump 'B' • Identify failure to auto start of stator cooling water pump 'A' • Start stator cooling water pump 'A' • Refer to ARP-870-54A-D01: • Verify automatic action occurs (Standby pump starts) • Determine cause of pump trip and initiate corrective action • Dispatch turbine building operator to investigate

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event trigger T5 is initiated at Lead Evaluator discretion. **T5, RPS003A,** LOSS OF POWER TO RPS CHANNEL A **ROLE PLAY** As WMC / FIN / Maintenance, accept request to investigate / repair issue with RPS A As the control building operator, accept the direction to investigate the loss of RPS 'A', after 3 minutes report that the MG set is running with its output breaker open As back panel operator when requested reset nuclear instrumentation by inserting trigger **T28, NIS001,** NI CABINET 20 VDC POWER SUPPLIES		SRO	Annunciator: 863-72A-A01, ANNULUS PRESSURE HIGH Indications: H13-P680, all APRM, IRM, and SRM status lights for channels that are not bypassed are lit for the deenergized RPS Bus. Isolation of many components controlled by RPS-A • Enter and direct implementation of AOP-0010, LOSS OF RPS BUS for loss of RPS A • Notify WMC / FIN / Maintenance to investigate / repair RPS A issue. • Enter EOP-0003, Secondary Containment and Radioactivity Release Control for annulus high pressure (No actions to take)
		ATC	• Recognize and report loss of RPS 'A' • On H13-P680, all APRM, IRM, and SRM status lights for channels that are not bypassed are lit for the de-energized RPS Bus

Booth Instructions	Time	Position	Applicant's Actions or Behavior

		BOP	• Dispatch building operator to investigate loss of RPS 'A'.
			• Perform Actions of AOP-0010 LOSS OF RPS BUS
			  • Place RPS A Power Transfer Switch to the available power source (immediate action of AOP-10)
			  • Depress INBD and OUTBD isolation reset pushbuttons
			  • Verify/Restore isolations per AOP-0010
			  • IAS-MOV106, INST AIR OUTBD ISOL
			  • CCP-MOV138, CONTMT SPLY OUTBD ISOL
			  • CCP-MOV142, RR PUMP CLG SUPPLY
			  • CCP-MOV159, CONTMT TRN OUTBD ISOL

Booth Instructions	Time	Position	Applicant's Actions or Behavior

			• Restore Drywell Cooling
			  • Place control switches for all tripped Drywell Unit Coolers to OFF
			  • Close EJS-ACB25, NHS MCC102A SPLY BRKR
			  • Open SWP-MOV4A, DRYWELL UC SUPPLY
			  • Verify open SWP-MOV5B, DRYWELL UC RETURN
			  • Start additional Drywell Unit Coolers as needed
			• RCS-MOV61A, FCV A ACTUATOR LEAKOFF
			• RCS-MOV60A, FCV A RETURN ISOL VLV
			• RCS-MOV59A, FCV A CLOSING SPLY VLV
			• RCS-MOV58A, FCV A OPENING SPLY VLV
			• The remaining portions of AOP-0010 Attachment 1, Subsequent Operator Actions for Loss of RPS Bus A

Booth Instructions	Time	Position	Applicant's Actions or Behavior
			Examiner Note: Please allow applicant time to restore isolations in AOP-0010, up to Step 13 for Flow Control Valve Hydraulics on H13-P808

Booth Instructions	Time	Position	Applicant's Actions or Behavior

Event 6 is initiated concurrently with Event 5.
 	
SWPMOV5BP, 100, SWP-MOV5B, POSITION
 	
ROLE PLAY
As WMC / FIN / Maintenance, accept request to investigate / repair issue with SWP-MOV5B
		SRO	• Acknowledge failure of SWP-MOV5B to isolate on loss of RPS 'A'.
			• Enter Tech Spec 3.6.1.3, PRIMARY CONTAINMENT ISOLATION VALVES (PCIVs)
			  • Condition A.1, One or more penetration flow paths with one PCIV INOP except due to leakage not within limit; Isolate the affected penetration flow path by the use of at least one closed and de-activated automatic valve, closed manual valve, or check valve with flow through the valve secured within 4 hours
			  AND
			  Condition A.2, verify the affected penetration flow path is isolated once every 31 days.
			• Notify WMC / FIN / Maintenance to investigate / repair SWP-MOV5B issue.

Booth Instructions	Time	Position	Applicant's Actions or Behavior
		BOP	• Recognize and report failure of SWP-MOV5B to isolate on loss of RPS 'A' during performance of AOP-0010 Attachment 1, Subsequent Operator Actions for Loss of RPS Bus A.

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event trigger T7 is initiated at Lead Evaluator discretion, BOP to complete up to and including Step 14 of AOP-0010 Attachment 2 prior to trigger. **T7, GMC003A,** STATOR COOLING WATER PUMP A SHEARED SHAFT **T7 RPS001B,** RPS FAILS TO SCRAM – AUTO SIGNALS ONLY **RPS001C,** RPS FAILS TO SCRAM – MANUALLY **ENCLOSURES**: **T18 EOP018, JUMPRD,** EOP-5 ENCL 18 (FWP LEVEL 8 TRIPS) **T16 EOP016, JUMPRD,** EOP-5 ENCL 16 (CONTAINMENT IAS ISOL) **T12 EOP012A, JUMPRD,** EOP-5 ENCL 12 (RPS SIGNALS)		SRO	Annunciators: P870/54A/D02, Turb Runback Stator Coolant Trouble P870/54A/C04, Stator Cooling Inlet Water Low Pressure P870/54A/C05, Stator Cooling Inlet Water Low Flow P680/15A/A05, Main Generator Runback in Progress • Accept the report of the turbine runback and direct placement of the reactor mode switch to shutdown • Notify WMC / FIN / Maintenance to investigate / repair GMC-SCPM-A pump issue. • Enter and take actions per EOP-0001, RPV Control • Direct implementation of AOP-0001, Reactor Scram and AOP-0003, Automatic Isolations

Booth Instructions	Time	Position	Applicant's Actions or Behavior

		ATC	• Recognize and report Turbine Runback
			• Place the reactor mode switch to shutdown
			• Perform actions of AOP-0001, Reactor Scram to insert control rods:
			  • Place the Mode switch to shutdown.
			  • Arm and depress C71A-S3A, B, C, and D manual scram pushbuttons
			  • Arm and depress C11C-S1A and B ARI manual initiation pushbuttons
			• Verify that all control rods have inserted

Booth Instructions	Time	Position	Applicant's Actions or Behavior
			• Verify the Feedwater system is operating to restore water level • Verify Reactor pressure is being maintained by the turbine, bypass valves, or safety relief valves • Select and insert the SRM and IRM detectors **CRITICAL TASK**: • **Initiate ARI to insert control rods before reaching level two**

		BOP	• Implement AOP-0003, AUTOMATIC ISOLATIONS for level 3
			  • Use Attachment 1, Signal to Actuation/Isolation Relationship to determine which actuations and isolations should have taken place
			  • Verify each component from Attachment 2, Isolation Valve Check off Sheet, is in its isolate position, and place an initial in the isolated/initials column of Attachment 2, Isolation Valve Check off Sheet.

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event 8 is initiated upon the Mode switch being taken to Shutdown. **MGEN003,** MAIN GENERATOR REVERSE POWER RELAY FAILURE		SRO	• Accept report of the failure of the main generator to trip • Direct implementation of AOP-0002, Main Turbine and Generator Trips

		ATC	• Recognize and report the failure of the main generator to trip
			
			• Implement AOP-0002, Main Turbine and Generator Trips actions for main generator failure to trip on reverse power
			  • Verify the main turbine has tripped
			
			  • Attempt to initiate a Generator Reverse Power Trip:
			  • Depress VOLTAGE REGULATOR MODE SELCT MAN Pushbutton
			
			  • Using VOLTAGE REGULATOR MANUAL ADJUST Pushbuttons adjust VARs to 0 as indicated on VAR-1SPGN05

Booth Instructions	Time	Position	Applicant's Actions or Behavior
			• Transfer the NPS buses to the Preferred Station Service Transformers • Turn 13.8KV SYNC SELECT Switch to PFD for NPS-SWG1A(B) • Close NPS-ACB11(27) 13.8KV PFD SUPPLY BRKR • Trip NPS-ACB09(25) 13.8KV NORM SUPPLY BRKR • Place 13.8KV SYNC SELECT Switch to OFF for NPS-SWG1A • Open the main generator output breakers.

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event T9 is initiated upon the Mode switch being taken to Shutdown. **T9, CNM006, FINAL VALUE 100,** CONDENSATE FILTER HIGH DIFFERENTIAL PRESS **HPCS002,** HPCS INJECTION VALVE F004 FAILS TO OPEN **ROLE PLAY** As ACR operator report that Condensate filter high differential pressures are being experienced and that you are unable to open CNM-FCV200 remotely. As turbine building operator if dispatched to open CNM-FCV200, after the team has entered alternate level control wait 2 minutes and insert **T30, CNM006, FINAL VALUE 0,** CONDENSATE FILTER HIGH DIFFERENTIAL PRESS and then report that you have manually opened CNM-FCV200		SRO	• Accept the report for the loss of feed. • Direct dispatching of an operator to open CNM-FCV200 to bypass the condensate filters and restart a reactor feed pump

		ATC	• Recognize and report condensate high differential pressure and loss of normal feed water injection.
			
			• After CNM-FCV200 is open, restart a feed pump per OSP-0053 hard card (Attach 16) and restore RPV injection:
			  • Verify at least one condensate pump running
			  • Verify Feed Reg Valves configured to control injection
			  • Verify MN and Gear Increaser Lube Oil Pressure Normal lights are lit for Feed Pump to be started.
			  • Reset the Feed Pump High Level Trip
			  • Press STOP pushbutton on Feed Pump to be started

Booth Instructions	Time	Position	Applicant's Actions or Behavior
As reactor building operator, if dispatched, report that you are unable to open the HPCS injection valve it appear jammed. As WMC/FIN/Maintenance accepted request for assistance with HPCS injection valve			• Start desired feed pump • Open Feed Pump Discharge Valve • Restore high pressure injection into the RPV and restore RPV water level to directed band.
		BOP	• Recognize and report failure of E22-F004, HPCS INJECT ISOL VALVE to open • Attempt to open E22-F004, HPCS INJECT ISOL VALVE injection valve. **CRITICAL TASK**: • **Restore and maintain RPV water level to > -186 inches prior to ED required at -186 inches**

Termination is at the discretion of the Chief Examiner.	**FREEZE**	**<u>Critical Task Review</u>:** **1. Initiate ARI to insert control rods before reaching RPV level two** **2. Restore and maintain RPV water level to > -186 inches prior to ED required at -186 inches**

VI. TERMINATION CRITERIA:

The exercise should be terminated when the performance objectives have been achieved or the operators are unable to diagnose and respond effectively to the scenario.

The following conditions provide an indication of performance objective achievement for this scenario; Critical Tasks are indicated with an *:

- Stator Cooling Water Pump rotation completed
- Reactor power raised with recirculation flow
- HVY-FN2B(D) running
- RPS A power restored
- Reactor scram inserted due to loss of Stator Water Cooling
- SWP-MOV5B failure to isolate identified
- AOP-0002 action completed for main generator motoring
- CNM-FCV200 opened and a feedwater pump restarted.
- *ARI to insert control rods
- *RPV water level restored and maintained > -186”

VII. REFERENCES

A. Plant Procedures

1. SOP-0020, Generator Stator Cooling System
2. AOP-0010, Loss of RPS Buss
3. ARP-680-06A-A05
4. ARP-870-54A-C01, D01
5. ARP-863-75A-F06
6. Tech Specs
7. AOP-0001, Reactor Scram
8. AOP-0002, Main Turbine and Generator Trips
9. AOP-0003, Automatic Isolations
10. EOP-1, RPV Control
11. EOP-2, Primary Containment Control
12. OSP-0053, Emergency and Transient Response Support Procedure

Offgoing OSM:	Oncoming OSM:	Off-Going Shift
_____ _____ (Print) KCN	_____ _____ (Print) KCN	N D ☐ ☐ Date
Swap Stator Water Cooling Pumps (for scheduled tag out of GMC-SCPM1A for oil change) per SOP-0020 Section 5.2		
Reactor power is 93% ramping following sequence exchange, reactor engineering performing monitor case prior to next power increase		

SIGNIFICANT LCO STATUS	EOOS STATUS
T.S. 3.5.3 Condition A, 1 day into 14 day LCO	9.1 Green
HPCS verified operable.	
EQUIPMENT STATUS	PROTECTED EQUIPMENT
RCIC tagged out for line fill pump maintenance	Division 1 and 3

☐ Night Orders ☐ Standing Orders ☐ Board Walkdown ☐ Temp Alts

_____ _____
(Signature: Oncoming OSM Review Completed) KCN

Appendix D **Scenario Outline** **Form ES-D-1**

Facility: River Bend Station Scenario No.: NRC-4 IC No.: 254

Examiners: _____ Operators: _____
_____ _____
_____ _____

Initial Conditions: 80% reactor power. Performing Sequence Exchange; RHR-B is in Supp Pool Cooling and Containment Purge is in service for post-maintenance RCIC testing;

Turnover Shift priorities: Start RCIC for testing
Adjust MVARs
Raise Reactor power in accordance with the RMP for sequence exchange;

Event No.	Malf. No.	Event Type*	Event Description
1	NA	N (BOP)	Start RCIC IAW SOP-0035, Section 4.2
2	NA	N (SRO,ATC)	Adjust MVAR on Main Generator
3	NA	R (ATC)	Raise Power IAW RMP for sequence exchange
4 T	DI-HVR-UC1A LO_HVR-UC1A-A P863_71a:f_3	C (SRO,BOP)	HVR-UC1A trip (TS)
5 T	NMS011F	I (SRO,ATC)	APRM F fails upscale (TS)
6 T	MSS010	I (SRO,BOP)	Loss of Steam Seal Header Pressure
7 T	RCIC004 RMS215/219 RCIC007/008	M (ALL)	Steam Leak in RCIC Room – Spreads to RHR-C RCIC Steam Supply Isol Valves (F063 & 64) fail to shut Rx Scram
8	MSS008D,O,G	C (SRO,BOP)	SRV Failures B21RV41B, D, F
9	RMS110A RMS110B LO-HVR-AOD-164-G LO-HVR-AOD-164-R	C (SRO,BOP)	Auxiliary Building Isolation Damper (HVR-AOD164) fails to auto shut

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Total Malfunctions (5-8) (6) HVR-UC1A Trip, APRM upscale, SSE Press, Steam Leak, SRV Failures, HVR-AOD164 fail

Malfunctions after EOP entry (1-2) (2) SRV's, HVR-AOD164 isolation failure

Abnormal Events (2-4) (3) AOP-0001, AOP-0002, ARP for SSE Press

Major Transients (1-2) (1) Steam Leak in RCIC Room - Spreading

EOPs entered (1-2) (2) EOP-0001, EOP-0003

EOP contingencies (0-2) (1) EOP-0003

Critical Tasks (2-3) (2) ED within 20 minutes following exceeding max safe Table H in two areas, Isolate the auxiliary building within 25 minutes of RMS-RE110 reaching 6.02E-3 uCi /ml

General Scenario Outline

Event 0 – The team assumes the shift with reactor power at 80% for control rod sequence exchange

Event 1 – After taking the shift the team will start RCIC CST to CST for post maintenance testing

Event 2 – After the start of RCIC, the System Operations Center (SOC) requests that main generator MVAR be raised prior to increasing reactor power

Event 3 – The team will raise reactor power with control rods as part of the control rod sequence exchange

Event 4 – Following control rod with draw Containment Unit Cooler A trips requiring start of the non-safety related unit cooler C. Entry is made into Tech Spec 3.6.1.7

Event 5 – Next APRM F fails upscale resulting in a ½ scram. Entry into Tech Spec 3.3.1.1 will be made and the APRM will be bypassed and the ½ scram reset

Event 6 – The inlet valve to the turbine steam seal pressure regulator fails next requiring the team to utilize the bypass valve to restore steam seal header pressure prior to a loss of condenser vacuum

Event 7 – A steam leak then occurs in the RCIC room. RCIC room temperature and radiation levels begin to rise. The unit is taken offline (Scrammed) when the leak is unable to be isolated. As the steam leak continues radiation levels continue to rise, because the door between the RCIC room and RHR C was left open as the maintenance personnel exited the room, RHR C radiation levels begin to rise. The team will enter EOP-0003 for secondary containment control and track radiation levels. When radiation level reach the MAX SAFE values in both rooms the RPV will be emergency depressurized

(Critical Task to emergency depressurize within 20 minutes of exceeding max safe in two or more areas in Table H- additional SRVs must be opened to ensure RPV is depressurized)

Event 8 – During the emergency depressurization three ADS safety relief valves will fail to open requiring the team to open additional safety relief valves to ensure the reactor is depressurized

Event 9 – Auxiliary building exhaust radiation levels require manual isolation of the auxiliary building. A failure to automatically close on HVR-AOD164 requires it to be manually closed via the hand switch

(Critical Task to isolate the auxiliary building within 25 minutes of RMS-RE110 reaching 6.02E-3 uCi/ml)

RIVER BEND STATION SIMULATOR SCENARIO	Number: ***RSMS-NRC-D14-4** Revision: **01** Page 1 of **25** Approximate Time: 1 Hour(s) Record Type: ***Z01.24**

TRAINING PROGRAM:

SIMULATOR TRAINING

LESSON PLAN:

* Trip of HVR-UC1A, APRM Upscale, SSE Header Pressure Low, RCIC Steam Leak, Pressure Control Failure

REASON FOR REVISION:

NRC December 2014 exam

PREPARE / REVIEW:

Thomas LaPorte	0160	07-23-2014
Preparer	KCN	Date
Dave Bergstrom	0257	09-30-2014
Technical Review (SME)	KCN	Date
Steve Carter	0358	10-01-2014
Operations Representative	KCN	Date
Joey Clark	0260	10-18-2014
Facility Reviewer	KCN	Date

* Indexing Information

I. DESCRIPTION OF SCENARIO

This scenario begins with the plant at 80% power.
Events for this scenario:

- Start RCIC IAW SOP-0035 Section 4.2
- Adjust MVAR on Main Generator IAW SOP-0080, section 5.9
- Raise power per RMP control rod withdrawal
- APRM F fails upscale
- Loss of Steam Seal Header Pressure
- Steam Leak in RCIC Room –Spreads to RHR-C
- ADS SRV Failure to Energize (B21-RVF041B, D, F)
- RCIC Steam Supply Isol Valves (F063 &64) fail to shut
- Auxiliary Building Isolation Damper (HVR-AOD164) fails to auto shut

II. TERMINAL OBJECTIVES

1. Given a series of events in the simulator, perform actions to mitigate the consequences of the events in accordance with approved station procedures.

IV. INITIAL CONDITIONS/SHIFT TURNOVER

INITIAL CONDITION	TRAINING FOCUS	EQUIPMENT STATUS	REQUIRED DOCUMENTS
IC #254		**Power:** 80% **Core:** Xenon equilibrium **Equipment OOS:** APRM B in bypass due to downscale failure **STPs Due:** None **LCOs:** None **Evolutions in progress:** Performing Sequence Exchange; RHR-B is in Supp Pool Cooling and Containment Purge is in service for post-maintenance RCIC testing. **Problem/Lit annunciators:** None	

V. GENERAL INSTRUCTIONS

Instructions	MFS-OR-REM-SCH	Notes
Simulator Setup Check Boards for Equip Tags Check procedures and hard cards for marks Check Gauges/Meters for marks. Make marked-up copies of STPs available. Check that the Shutdown Plan is appropriate for this scenario. Check power ~ 80% Bring up Insight – RCIC cubicle Temperature Verify APRM B in Bypass	**Malfunctions** **T26 E51MOVF022P, FV 25%, DELETE 00:00:03,** E51-MOVF022 POSITION **T4 DI_HVR-UC1A, STOP,** 863-71C CONTMT UNIT CLR SW **T4 LO_HVR-UC1A-A, ON,** 863-71C CONTMT UNIT CLR LTA AMBER **T4 p863_71a:f_3, FAIL ON,** CONTAINMENT UNIT COOLERS OUTLET FLOW LOW **T5 NMS011F,** APRM F FAILS UPSCALE **T6 MSS010,** GLAND SEAL REG INLET VLV MOVS1 FAILS **T25 p863_71a:f_3, FAIL OFF,** CONTAINMENT UNIT COOLERS OUTLET FLOW LOW **T7 RCIC004,** RCIC STEAM LEAK IN RCIC ROOM **T7 RMS215, FV 10000, RAMP 00:15:00,** RHR EQUIPMENT ROOM MONITOR (RE215) **T7 RMS219 FV 10000, RAMP 00:10:00,** RCIC EQUIPMENT ROOM MONITOR (RE219) **T7 RMS110A FV 0.1, RAMP 00:05:00,** AUX BLDG EXHAUST (RE110-GAS) RAD MONITOR	

Instructions	MFS-OR-REM-SCH	Notes
	T7 RMS110B FV 0.00001, RAMP 00:06:00, AUX BLDG EXHAUST (RE110-PART) MONITOR **MSS008D,** SRV 1B21*F041B FAIL TO ENERGIZ **MSS008O,** SRV 1B21*F041D FAIL TO ENERGIZ **MSS008G,** SRV 1B21*F041F FAIL TO ENERGIZ **RCIC007,** RCIC OUTBD ISOL VLV, F063, FAILS TO CLOSE **RCIC008,** RCIC OUTBD ISOL VLV, F064, FAILS TO CLOSE **NMS012B,** APRM B FAILS DOWNSCALE **Remote Functions** **T18 EOP018, JUMPRD,** EOP-5 ENCL 18 (FWP LEVEL 8 TRIPS) **T16 EOP016, JUMPRD,** EOP-5 ENCL 16 (CONTAINMENT IAS ISOL) **T12 EOP012A, JUMPRD,** EOP-5 ENCL 12 (RPS SIGNALS) **Overrides** **LO_HVR-AOD164-G, OFF,** 863-71C UP STREAM ISOL SUPPLY LTG GREEN **LO_HVR-AOD164-R, ON,** 863-71C UP STREAM ISOL SUPPLY LTR RED	

Instructions	MFS-OR-REM-SCH	Notes	
	T23 LO_HVR-AOD164-G, OFF, DELETE 00:00:01 863-71C UP STREAM ISOL SUPPLY LTG GREEN **T23 LO_HVR-AOD164-R, ON, DELETE 00:00:01,** 863-71C UP STREAM ISOL SUPPLY LTR RED **Event Triggers** **T23 , zdi2(331)==1,** DI_HVR-AOD164 **T25 , zdi2(326)==1,** DI_HVR-UC1C		
Simulator Setup			
Event 0	**RUN**	CREW:	Board walk down / Turnover.

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event initiated by crew from turnover sheet. **ROLE PLAY:** As radiation protection acknowledge RCIC pump operation and report that room conditions are being monitored. As maintenance acknowledge RCIC pump operation and report that mechanics are standing by to perform post maintenance inspections. As reactor building operation coordinate with unit operator and report that E51-F022 local valve position indicates 25% open as follows: • On first stroke of E51-F022 report valve is 15% open On second stroke of E51-F022 report valve is 25% open and insert trigger 26 to position valve to 25% open.		SRO	• Direct the UO to perform SOP-0035 Section 4.2.
		UO	Annunciator: P601-21A-H04, RCIC Dich Line Fill Pump Pressure Low (expected when open E51-F022 valve) • Accept the direction to perform SOP-0035 Section 4.2. • Notify Radiation Protection • Verify Suppression Pool Cooling and Containment Purge are in-service. • Verify STP-057-0700, being performed by another operator • Start Gland Seal Compressor • Open E51-F059, Test Return to CST • Make Plant announcement • Verify P601-21-B03, Steam Supply Drain Trap Level High is clear. • Open E51-F022, Test Bypass to CST to 25% **Examiner Note:** this takes coordination with a field operator • Open E51-F045, Steam Supply Stop Valve

Booth Instructions	Time	Position	Applicant's Actions or Behavior
			• Verify closed E51-F025,F026, F004, F005 (Steam Drains) • Verify E51-F019, Min Flow to Suppression Pool closed • Establish a discharge flow path to the CST (4.2.14, second bullet) • Open E51-F059, Test Return to CST • Throttle E51-F022, Test Bypass to CST to discharge pressure of approximately 1000 psig • Verify E51-F019, Min Flow Valve closed

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event 2 initiated by crew from turnover sheet. **ROLE PLAY:** *As SOC acknowledge that the RBS main generator MVARS have been raised to +100.*		SRO	• Direct the UO to perform SOP-0080 Section 5.9 to raise main generator MVAR to +100. • Report to the SOC that MVARS have been raised to +100.

		ATC	• Accept the direction to perform SOP-0080 Section 5.9 to raise main generator MVAR to +100
			• Perform SOP-0080 Section 5.9:
			  • Verify Voltage Regulator Switch in Auto
			
			  • Adjust MVARS to +100 by:
			  • Momentarily depress the RAISE pushbutton
			
			E**xaminer Note:** operator may perform this in incremental steps
			
			  • Verify VAR-1SPGN05 reads +100

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event 3 initiated by RE providing EN-RE-215 RMP control rod withdraw step. **ROLE PLAY:** As reactor engineer provide next sequential EN-RE-215 RMP control rod withdraw step to the SRO		SRO	• Direct the ATC to perform RMP step 12
		ATC	• Accept the direction to perform RMP step 12 • Select rod to be moved (20-33) • Depress SELECTED GROUP button to check positions of control rods within group are correct prior to movement • Check that a Rod Withdrawal Block or Inhibit does not exist • Depress C11A-S334, WITHDRAW Pushbutton • Check that rod notch position displayed is the next highest even number **Examiner Note:** first rod motion will be from 00 to 02, the second from 02 to 04 and the third from 04 to 06. After reaching position 04, the following Annunciator comes in: P680-7A-C01, Control Rod Withdrawal Block The applicant will de-select the rod and then re-select the rod to clear the rod block and allow the final withdraw from position 04 to position 06.

Booth Instructions	Time	Position	Applicant's Actions or Behavior
			Examiner Note: the next rod will be moved in the same fashion: • 36-33

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event T4 initiated at Lead Evaluator discretion. **T4 DI_HVR-UC1A, STOP,** 863-71C CONTMT UNIT CLR SW **T4 LO_HVR-UC1A-A, ON,** 863-71C CONTMT UNIT CLR LTA AMBER **T4 p863_71a:f_3, FAIL ON,** CONTAINMENT UNIT COOLERS OUTLET FLOW LOW **T25 p863_71a:f_3, FAIL OFF, Delay 00:00:03,** CONTAINMENT UNIT COOLERS OUTLET FLOW LOW **ROLE PLAY:** As WMC/FIN/Maintenance, accept request for maintenance assistance in investigating HVR-UC1A trip As reactor building operator report as follows: • For breaker investigation report the cause of breaker trip appears to be over current • For unit cooler investigation report that you do not see anything abnormal at HVR-UC1A		SRO	• Acknowledge trip of HVR-UC1A • Enter Tech Spec 3.6.1.7, Primary Containment Unit Coolers, Two primary containment unit coolers shall be OPERABLE • Condition A, One required primary containment unit cooler inoperable; restore required containment unit cooler to OPERABLE status in 7 days • Direct start of HVR-UC1C

		UO	Annunciators:
			p863-71A-H03, Containment Unit Cooler Fan Auto Trip
			p863-71A-F03, Containment Unit Cooler Outlet Flow Low
			• Recognize and report trip of HVR-UC1A
			• Dispatch operator to investigate
			• Respond to trip of HVR-UC1A per ARP-863-71A-H03:
			  • Verify that HVR-UC1A has stopped
			  • Start a non-running unit cooler fan if required

Booth Instructions	Time	Position	Applicant's Actions or Behavior
ROLE PLAY: For start of HVR-UC1C report that the unit cooler is operating normally			• Start HVR-UC1C per SOP-0059, Section 4.2.4 or Section 5.12.2: • Depress the START Pushbutton for HVR-UC1C, CONTMT UNIT CLR C • Verify HVN-TV122 opens

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event trigger T5 initiated at Lead Evaluator discretion. **T5 NMS011F,** APRM F FAILS UPSCALE **ROLE PLAY:** As back panel report that APRM F indicates full upscale and that all other APRMs indicate normal. As WMC/FIN/RE/Maintenance, accept request for maintenance assistance in investigating APRM F trip If contacted as I&C, inform the SRO that APRM-B may be taken out of Bypass.		SRO	Annunciators: P680-6A-A03, APRM B or F Upscale Trip or INOP P680-6A-C01, APRM Upscale P680-6A-A02, Neutron Monitoring System P680-5A-A10, RPS Trip Logic B or D Activated P680-7A-C01, Control Rod Withdrawal Block Indications: C51-R603B, IRM/APRM Level (BLUE) APRM F upscale • Accept the report of APRM F upscale failure with Division 2 half scram and no single rod scrams • Notify organization of APRM F failure and request assistance. • Enter Tech Spec 3.3.1.1, Reactor Protection System (RPS) Instrumentation • Condition A.1, Place channel in trip in 12 hours OR Condition A.2, Place associated trip system in trip in 12 hours

Booth Instructions	Time	Position	Applicant's Actions or Behavior
			• Contact Work Control about status or availability of restoring APRM B from bypass. • Direct removing APRM B from bypass and placing APRM F in bypass • Direct resetting the half scram.
		UO	• Respond to APRM F failure by investigating and reporting back panel indications
		ATC	• Recognize and report upscale failure of APRM F with a Division 2 half scram and no single rod scrams • When directed, remove APRM B from bypass by depressing the top button and moving the toggle switch (C51B S6) from B (left) to center then place APRM F in bypass by depressing the top button and moving the toggle switch from the center to the "F" position (forward) • Reset Division 2 half scram by rotating the spring return switches for Division 2 scram reset.

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event T6 initiated at Lead Evaluator discretion. **T6 MSS010,** GLAND SEAL REG INLET VLV MOVS1 FAILS **ROLE PLAY:** As turbine building operator accept request to investigate steam seal evaporator failure and after 5 min report that TME-MOVS1 is closed for some unknown reason.		SRO	Annunciator P870-54A-E05, Steam Seal Evap Steam Header Low Pressure • Acknowledge low steam seal evaporator header pressure • Direct operator restoration of steam seal evaporator header pressure per ARP
		BOP	• Recognize and report low steam seal evaporator header pressure • IAW ARP-870-54A-E05, verify header pressure on TME-PIEPR-4, St Seal Header Pressure is approximately 4 psig. IF pressure is low due to failure of the pressure control valve, THEN • Take manual control of steam seal header pressure: Open TME-MOVS2 to restore steam seal evaporator header pressure.

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event T7 initiated at Lead Evaluator discretion. **T7 RCIC004,** RCIC STEAM LEAK IN RCIC ROOM **T7 RMS215, FV 10000, RAMP 00:15:00,** RHR EQUIPMENT ROOM MONITOR (RE215) **T7 RMS219 FV 10000, RAMP 00:10:00,** RCIC EQUIPMENT ROOM MONITOR (RE219) **RCIC007,** RCIC OUTBD ISOL VLV, F063, FAILS TO CLOSE **RCIC008,** RCIC OUTBD ISOL VLV, F064, FAILS TO CLOSE **CRITICAL TASK:** **ED within 20 minutes after exceeding max safe Table H in two or more areas** **ROLE PLAY:**		SRO	Annunciators: P863-71A-A07, Div 1 Main Plant Exhaust PAM Gaseous Rad RMS Display, DRMS Alarms - Various P601-21A-H02/3, Air Temp Mon RCIC Room • Enter EOP-0003, Secondary Containment Control • Direct monitoring and reporting of secondary containment parameters • Direct Reactor Scram • Enter EOP-1 for Level 3 on Scram • Direct RPV pressure reduction to combat the RCIC room steam leak. • Direct Emergency Depressurization when any secondary containment parameter exceeds max safe level in any two or more areas. **CRITICAL TASK: Emergency Depressurize RPV within 20 minutes after exceeding max safe Table H in two or more areas (additional SRVs must be opened to ensure RPV is depressurized-see below for these actions)**

Booth Instructions	Time	Position	Applicant's Actions or Behavior
As Back panel, provide ECCS cubicle temperatures as follows: • RCIC room temperature – from insight • All other ECCS room temperatures 85F. As WMC/FIN/Maintenance accept request to assist in isolation of RCIC leak **ENCLOSURES:** **T18 EOP018, JUMPRD,** EOP-5 ENCL 18 (FWP LEVEL 8 TRIPS) **T16 EOP016, JUMPRD,** EOP-5 ENCL 16 (CONTAINMENT IAS ISOL) **T12 EOP012A, JUMPRD,** EOP-5 ENCL 12 (RPS SIGNALS)		ATC	• Place Mode Switch in Shutdown when directed • Provide Scram Report • Lower reactor pressure to combat the RCIC room steam leak.
		UO	• Monitor and Report ECCS cubicle temperature and radiation levels. • Make Announcement to "Evacuate the Aux Bldg due to steam leak" • Open 7 ADS/SRVs when directed to emergency depressurize the RPV.

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event initiated upon CRS direction to open 7ADS/SRVs for emergency depressurization. **MSS008D,** SRV 1B21*F041B FAIL TO ENERGIZ **MSS008O,** SRV 1B21*F041D FAIL TO ENERGIZ **MSS008G,** SRV 1B21*F041F FAIL TO ENERGIZ		SRO	• Direct opening of additional SRVs to ensure RPV is depressurized
		UO	• Recognize and report three ADS-SRVs failed to open. (B21-RVF041B, D, F fail to energize) • Open additional SRVs to ensure RPV is depressurized

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Event concurrent with event 7 **T7 RMS110A FV 0.1, RAMP 00:05:00,** AUX BLDG EXHAUST (RE110-GAS) RAD MONITOR **T7 RMS110B FV 0.00001, RAMP 00:06:00,** AUX BLDG EXHAUST (RE110-PART) MONITOR **LO_HVR-AOD164-G, OFF,** 863-71C UP STREAM ISOL SUPPLY LTG GREEN **LO_HVR-AOD164-R, ON,** 863-71C UP STREAM ISOL SUPPLY LTR RED **T23 LO_HVR-AOD164-G, OFF, DELETE 00:00:01** 863-71C UP STREAM ISOL SUPPLY LTG GREEN **T23 LO_HVR-AOD164-R, ON, DELETE 00:00:01,** 863-71C UP STREAM ISOL SUPPLY LTR RED **<u>CRITICAL TASK:</u>** **Isolate the auxiliary building within 25 minutes of RMS-RE110 reaching 6.02E-3 uCi/ml.**		SRO	Annunciators: RMS-DSPL230/GP110, RMS-RE110 Gaseous Monitor RMS-DSPL230/2PP110,RMS-RE110 Particulate Monitor • Direct isolation of the auxiliary building per EOP-0003, SECONDARY CONTAINMENT AND RADIOACTIVITY RELEASE CONTROL and OSP-0053, EMERGENCY AND TRANSIENT RESPONSE SUPPORT PROCEDURE • Direct closure of HVR-AOD164, UP STREAM ISOL SUPPLY
		UO	**CRITICAL TASK: Isolate the auxiliary building within 25 minutes of RMS-RE110 reaching 6.02E-3 uCi/ml** • Isolate the auxiliary building OSP-0053, EMERGENCY AND TRANSIENT RESPONSE SUPPORT PROCEDURE • Place HVR-AOD22A, ANNULUS MIX SPLY TO SGT in Man Init

Booth Instructions	Time	Position	Applicant's Actions or Behavior
			• Place HVR-AOD22B, ANNULUS MIX SPLY TO SGT in Man Init • Depress AUX BLDG TO SGT FLTR A MANUAL INITIATION 'Man Initiate' Pushbutton • Depress AUX BLDG TO SGT FLTR B MANUAL INITIATIION 'Man Initiate' Pushbutton • Verify the associated dampers are closed • Recognize and report failure of HVR-AOD164 to isolate • Close HVR-AOD164, UP STREAM ISOL SUPPLY

Termination is at the discretion of the Chief	**FREEZE**	**Critical Task Review:**

Booth Instructions	Time	Position	Applicant's Actions or Behavior
Examiner.			**1. ED within 20 minutes after exceeding max safe Table H in two or more areas** **2. Isolate the auxiliary building within 25 minutes of RMS-RE110 reaching 6.02E-3 uCi/ml.**

VI. TERMINATION CRITERIA:

The exercise should be terminated when the performance objectives have been achieved or the operators are unable to diagnose and respond effectively to the scenario.

The following conditions provide an indication of performance objective achievement for this scenario; Critical Tasks are indicated with an *:

- RCIC started per SOP-0035, Section 4.2
- Main Generator MVARS raised to +100
- RMP control rod withdraw step completed
- APRM F Bypassed; Tech Specs referenced
- ½ Scram reset
- Manual control of steam seal header pressure established
- HVR-UC1C in-service
- *ED within 20 minutes after exceeding max safe Table H in two or more areas
- * Isolate the auxiliary building within 25 minutes of RMS-RE110 reaching 6.02E-3 uCi/ml

VII. REFERENCES

A. Plant Procedures

1. SOP-0035, Reactor Core Isolation Cooling System
2. SOP-0080, Turbine Generator Operation
3. ARP-870-54A-E05
4. ARP-863-71A-H03
5. SOP-0059, Containment HVAC System
6. Tech Specs
7. EN-OP-115, Attachment 9.8
8. AOP-0001, Reactor Scram
9. AOP-0002, Turbine Trip
10. AOP-0003, Automatic Isolations
11. EOP-1, RPV Control
12. EOP-2, Primary Containment Control
13. EOP-3, Secondary Containment Control
14. OSP-0053, Emergency and Transient Response Support Procedure

Offgoing OSM:	Oncoming OSM:	Off-Going Shift
_____ _____ (Print) KCN	_____ _____ (Print) KCN	N D ☐ ☐ Date
Reactor Power is 80% for sequence exchange RE performing monitor cases for next RMP step		
RHR-B is in Suppression Pool Cooling and Containment low volume purge is in service to support RCIC run. STP-057-0700, Suppression PoOl Average Water Temperature Verification is being performed by another operator.		
RCIC post maintenance testing to begin following RCIC start per SOP-0035, Section 4.2, it **IS** desired to simulate a RCIC injection startup with a discharge pressure of approximately 1000 psig establish after startup		
SOC has requested that main generator MVARS be raise to +100 following RCIC startup to support sys load prior to raising reactor power.		

SIGNIFICANT LCO STATUS	EOOS STATUS
	10.0 Green
EQUIPMENT STATUS	PROTECTED EQUIPMENT
APRM B Bypassed due to downscale failure	Div 1 and 3

☐ Night Orders ☐ Standing Orders ☐ Board Walkdown ☐ Temp Alts

_____ _____
(Signature: Oncoming OSM Review Completed) KCN

Facility: River Bend Station | Date of Exam: 12/08/2014 | Operating Test No.:

APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		1 IC #251			2 IC #252			3 IC #253			4 IC#254						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO ☐ SRO-I ☑ SRO-U ☑	RX	-												0	1	1	0
	NOR	2,5												2	1	1	1
	I/C	3,4,6 8												4	4	4	2
	MAJ	7												1	2	2	1
	TS	1,3												2	0	2	2
RO ☑ ATC SRO-I ☐ SRO-U ☐	RX		1											1	1	1	0
	NOR		5											1	1	1	1
	I/C		4,6											2	4	4	2
	MAJ		7											1	2	2	1
	TS		-											0	0	2	2
RO ☑ BOP SRO-I ☐ SRO-U ☐	RX			-										0	1	1	0
	NOR			2										1	1	1	1
	I/C			3,8, 9										3	4	4	2
	MAJ			7										1	2	2	1
	TS													0	0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

Facility: River Bend Station | Date of Exam: 12/08/2014 | Operating Test No.:

APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		1 IC #251			2 IC #252			3 IC #253			4 IC#254						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO ☐ SRO-I ☑ SRO-U ☑	RX				-									0	1	1	0
	NOR				1									1	1	1	1
	I/C				3,4 7,8									4	4	4	2
	MAJ				6									1	2	2	1
	TS				2,5									2	0	2	2
RO ☑ ATC SRO-I ☐ SRO-U ☐	RX					-								0	1	1	0
	NOR					-								0	1	1	1
	I/C					4,8								2	4	4	2
	MAJ					6								1	2	2	1
	TS					-								0	0	2	2
RO ☑ BOP SRO-I ☐ SRO-U ☐	RX						-							0	1	1	0
	NOR						1							1	1	1	1
	I/C						3,7,8							3	4	4	2
	MAJ						6							1	2	2	1
	TS						-							0	0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

Facility: River Bend Station | Date of Exam: 12/08/2014 | Operating Test No.:

APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		1 IC #251			2 IC #252			3 IC #253			4 IC#254						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO ☐ SRO-I ☑ SRO-U ☑	RX							-						0	1	1	0
	NOR							1						1	1	1	1
	I/C							3,5,6 10						5	4	4	2
	MAJ							8						1	2	2	1
	TS							4,7						2	0	2	2
RO ☑ ATC SRO-I ☐ SRO-U ☐	RX								2					1	1	1	0
	NOR								-					0	1	1	1
	I/C								9					1	4	4	2
	MAJ								8					1	2	2	1
	TS								-					0	0	2	2
RO ☑ BOP SRO-I ☐ SRO-U ☐	RX									-				0	1	1	0
	NOR									1				1	1	1	1
	I/C									3,5,6 9,10				5	4	4	2
	MAJ									8				1	2	2	1
	TS									-				0	0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

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Facility: River Bend Station | Date of Exam: 12/08/2014 | Operating Test No.:

APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		1 IC #251			2 IC #252			3 IC #253			4 IC#254						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO ☐ SRO-I ☑ SRO-U ☑	RX										-			0	1	1	0
	NOR										2			1	1	1	1
	I/C										4,5,6 8,9			5	4	4	2
	MAJ										7			1	2	2	1
	TS										4,5			2	0	2	2
RO ☑ ATC SRO-I ☐ SRO-U ☐	RX											3		1	1	1	0
	NOR											2		1	1	1	1
	I/C											5		1	4	4	2
	MAJ											7		1	2	2	1
	TS											-		0	0	2	2
RO ☑ BOP SRO-I ☐ SRO-U ☐	RX												-	0	1	1	0
	NOR												1	1	1	1	1
	I/C												4, 6, 8, 9	4	4	4	2
	MAJ												7	1	2	2	1
	TS												-	0	0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

Facility: River Bend Station Date of Examination: 12/8/14 Operating Test No.:

Competencies	APPLICANTS															
	RO-ATC X SRO-I ☐ SRO-U ☐				RO-BOP X SRO-I ☐ SRO-U ☐				RO ☐ SRO-I X SRO-U X				RO ☐ SRO-I ☐ SRO-U ☐			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Interpret/Diagnose Events and Conditions	1,4, 6,7	4,6	2,3, 5,7, 8,9	3,5	3,6 ,8, 9	2,3, 6,7, 8	4,5, 6,7, 9	4,6, 7,8, 9	3,6 ,7	2,8	3,4, 5,7, 9	4,5 ,6, 7,8 ,9				
Comply With and Use Procedures (1)	1,5, 6,7	4,6	2,3, 7,8, 9	2,3, 5,7	2,3 ,7, 8,9	1,2, 3,6, 7,8	1,4, 5,6, 7,9	1,4, 6,7, 8,9	7	3,8	7,9	5,7 ,8, 9				
Operate Control Boards (2)	1,5, 6,7	4,6	2,3, 7,8, 9	2,3, 5,7	2,3 ,7, 8,9	1,2, 3,6, 7,8	1,4, 5,6, 7,9	1,4, 6,7, 8,9								
Communicate and Interact	1,4, 5,6, 7	4,6	2,3, 5,7, 8,9	2,3, 5,7	2,3 ,6, 7,8 ,9	1,2, 3,6, 7,8	1,4, 5,6, 7,9	1,4, 5,6, 7,8, 9	1-9	2,3 ,4, 5,6 ,7, 8	3,4, 5,6, 7,9	2,4 ,5, 6,7 ,8, 9				
Demonstrate Supervisory Ability (3)									1,3 ,4, 6,7 ,8	2,3 ,4, 6,7 ,8	3,4, 5,6, 7,8, 9	2,4 ,5, 6,7 ,8, 9				
Comply With and Use Tech. Specs. (3)									1,3 ,4, 8,9	1,2 ,5, 6,7	3,6	4,5 ,7, 8				

Notes:
(1) Includes Technical Specification compliance for an RO.
(2) Optional for an SRO-U.
(3) Only applicable to SROs.

Instructions:

Check the applicants' license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.