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

Facility: Cooper Nuclear Station Date of Examination: 2014
Examination Level: RO X SRO Operating Test Number: 1

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations		
Conduct of Operations SKL034-50-01	R,M	Interpret GARDEL Official Case K/A 2.1.25 (3.9/4.2)
Equipment Control SKL034-50-41	R,M	Determine Tagging Order Release Requirements K/A 2.2.13 (4.1/4.3)
Radiation Control SKL034-30-63	R,D	Radiation Protection Table Top K/A 2.3.13 (3.4/3.8)
Emergency Procedures/Plan SKL034-21-131	R,D	Suppression Pool Temp Calculation K/A: A295013 AA201 (3.8/4.0) 2.1.12 (2.9/4.0)

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)

Facility: Cooper Nuclear Station	Date of Examination: 2014
Examination Level: RO SRO X	Operating Test Number:

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations SKL034-50-80	R,N	Determine required Actions for Plant Chemistry Out of Specification K/A 2.1.34 (SRO 3.5)
Conduct of Operations SKL034-20-114	R,D	Determine Shift Staffing Requirements for Mode Change K/A 2.1.4 (SRO 3.4)
Equipment Control SKL034-50-18	R,D	Determine Post-Maintenance Testing Requirements K/A 2.2.7 (2.0/3.2)
Radiation Control SKL034-30-61	S,D	Protective Action Recommendation (PAR) Table Top X K/A 2.4.44 (2.1 / 4.0)
Emergency Procedures/Plan SKL034-21-131	R,M	Medical Emergency (#1) K/A 2.4.38 (2.2/4.0), 2.4.43 (2.8/3.5)

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)

Facility: Cooper Nuclear Station	Date of Examination: 2014
Exam Level: RO X SRO-I SRO-U	Operating Test No.: 1

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. Placing SDG In Service From Control Room K/A 262001.K4.06 (3.6 / 3.9) and 264000.A4.04 (3.7/3.7)	S, L, D, P	6
b. Shifting from Single Element to Auto (3 element) K/A 259002 A4.06 (3.1/3.2)	A, S, M	2
c. Recover from Manual Scoop Tube Operations K/A A.2.05 (RO 3.1 / SRO 3.1) A 2.09 (RO3.1 / SRO 3.0)	S, D	1
d. Transfer RPSPP1B from RPS MG Set B to CDP-1A K/A 212000 A1.11 (3.4 / 3.3) and 212000.A2.02 (3.7/3.9)	S, N	7
e. RPV Depressurization with RWCU K/A 204000 A4.03 (3.2 / 3.6), 204000.A1.04 (2.8/2.8)	A, S, E, L, N	3
f. Start HPCI From The ASD Room K/A 206000 A1.02 (4.2/4.2)	S, EN, D	4
g. Startup the Suppression Pool Cooling Mode of RHR (Alternate Path) K/A 219000 A4.02 (3.7 / 3.5)	A, S, D	5
h. Separation of REC Critical Loops K/A 295018 A1A.03 (3.3 / 3.4) and AK3.07 (3.1/3.2)	S, E, M	8
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Operate the Diesel Fire Pump Manually K/A 286000; A4.06(3.4/3.4)	A, E, D	8
j. Place 24 VDC Batteries and Associated Chargers in service K/A: 263000 K4.01(3.1/3.4) and 2.2.2 (4.6/4.1)	D	6
k. Alternate Boron Injection with RCIC K/A: 295037 EK2.1.3 (3.4/4.1)	E, R, D	1

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

Facility: Cooper Nuclear Station — Date of Examination: 2014
Exam Level: RO SRO-I X SRO-U — Operating Test No.: 1

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. Placing SDG In Service From Control Room K/A 262001.K4.06 (3.6 / 3.9) and 264000.A4.04 (3.7/3.7)	S, L, D, P	6
b. Shifting from Single Element to Auto (3 element) K/A 259002 A4.06 (3.1/3.2)	A, S, M	2
c.		
d. Transfer RPSPP1B from RPS MG Set B to CDP-1A K/A 212000 A1.11 (3.4 / 3.3) and 212000.A2.02 (3.7/3.9)	S, N	7
e. RPV Depressurization with RWCU K/A 204000 A4.03 (3.2 / 3.6), 204000.A1.04 (2.8/2.8)	A, S, E, L, N	3
f. Start HPCI From The ASD Room K/A 206000 A1.02 (4.2/4.2)	S, D, EN	4
g Startup the Suppression Pool Cooling Mode of RHR (Alternate Path) K/A 219000 A4.02 (3.7 / 3.5)	A, S, D	5
h. Separation of REC Critical Loops K/A 295018 A1A.03 (3.3 / 3.4) and AK3.07 (3.1/3.2)	S, E, M	8
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Operate the Diesel Fire Pump Manually K/A 286000; A4.06(3.4/3.4)	A, E, D	8
j. Place 24 VDC Batteries and Associated Chargers in service K/A: 263000 K4.01(3.1/3.4) and 2.2.2 (4.6/4.1)	D	6
k. Alternate Boron Injection with RCIC K/A: 295037 EK2.1.3 (3.4/4.1)	E, R, D	1

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

Facility: Cooper Nuclear Station	Date of Examination: 2014
Exam Level: RO SRO-I SRO-U X	Operating Test No.: 1

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.		
b.		
c.		
d. Transfer RPSPP1B from RPS MG Set B to CDP-1A K/A 212000 A1.11 (3.4 / 3.3) and 212000.A2.02 (3.7/3.9)	S, N	7
e. RPV Depressurization with RWCU K/A 204000 A4.03 (3.2 / 3.6), 204000.A1.04 (2.8/2.8)	A, S, E, L, N	3
f. Start HPCI From The ASD Room K/A 206000 A1.02 (4.2/4.2)	S, D, EN	4
g.		
h.		
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Operate the Diesel Fire Pump Manually K/A 286000; A4.06(3.4/3.4)	A, E, D	8
j.		
k. Alternate Boron Injection with RCIC K/A: 295037 EK2.1.3 (3.4/4.1)	E, R, D	1

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

Task No: 283016S0101

Title: Interpret a Thermal Limits (Gardel) Report (Alt. Path)

Trainee: _____ Examiner: _____

Pass ☐ Fail ☐ Examiner Signature: _____ Date: _____

Additional Program Information:

1. Appropriate Performance Locations: CR / Classroom
2. Appropriate Trainee level: RO / SRO
3. Evaluation Method: Simulate Perform
4. Performance Time: 20 minutes
5. NRC K/A 2.1.25 (RO 3.9 / SRO 4.2)

Directions to Examiner:

1. This JPM evaluates the trainee's ability to review and Interpret a Thermal Limits (Gardel) Report in accordance with procedure 6.LOG.601, Daily Surveillance Log – Modes 1, 2, and 3. (Provide a copy of the latest revision of Procedure 6.LOG.601 to the candidate)
2. Observe the trainee during performance of the JPM for proper use of self-checking methods.
3. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes/comments section below.
4. Brief the trainee and tell the trainee to begin.

Notes/Comments: _____

Task No: 283016S0101

Title: Interpret a Thermal Limits (Gardel) Report (Alt. Path)

Directions to Trainee:

When I tell you to begin, you are to perform a Thermal Limits check in accordance with procedure 6.LOG.601, Daily Surveillance Log – Modes 1, 2, and 3, Attachment 2, Thermal Limits Check.

Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

General Conditions:

The Plant has been Operating at 100% power for the past 120 days.

General References:

1. Procedure 6.LOG.601, Daily Surveillance Log – Modes 1, 2, and 3.
2. Procedure 10.7, Core Thermal Limits
3. Procedure 10.1, APRM Gain Adjustment
4. Tech Spec LCO 3.9.2,

General Tools and Equipment:

1. None

Special Conditions, References, Tools, Equipment:

1. Procedure 6.LOG.601, Daily Surveillance Log – Modes 1, 2, and 3.
2. Procedure 10.7, Core Thermal Limits
3. Critical checks denoted by **bold steps.**
4. Cues denoted by "**#**".

Task No: 283016S0101

Title: Interpret a Thermal Limits (Gardel) Report (Alt. Path)

Task Standards:

1. The operator recognizes that MFLPD is out of specification and informs the CRS that procedure 10.7, Core Thermal Limits must be performed and entry into Tech Specs LCO 3.9.2 is required.
2. 100% of critical elements successfully completed without error.
3. 100% of safety and radiological work practices.

Initiating Cue(s):

The Control Room Supervisor directs you to perform a Thermal Limits check in accordance with procedure 6.LOG.601, Daily Surveillance Log – Modes 1, 2, and 3, Attachment 2, Thermal Limits Check.

Record the results of your check and turn in the results to the examiner.

Task No: 283016S0101

Title: Interpret a Thermal Limits (Gardel) Report (Alt. Path)

Start Time: _____

Performance Checklist	Standards	Sat	Unsat
1. Obtain Procedure	Obtained the current revision of Procedure 6.LOG.601. Selects Attachment 2.	____	____
2. Reviews a GARDEL print out.	Reviewed the GARDEL Periodic Report.	____	____
3. Enters data	3.1The Operator entered the data from the report on the Thermal limit checks sheet (Att. 2).	____	____
4. Thermal Limit Out of Specification	**3.2 Operator indicated MFLPD was above the limit and continued to 10.7, Core Thermal Limits, in accordance with note at bottom of page.**	____	____
5 Notifies the CRS of Thermal Limit out of Spec and required Tech Spec Entry	**Operator recorded that reactor MFLPD thermal limit was out of specification and must be returned to within limit in accordance with procedure 10.7, section 5, Operation Above MFLPD (LHGR) Limit.**	____	____

Stop Time: _____ **Total Time: _____**

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to perform a Thermal Limits check in accordance with procedure 6.LOG.601, Daily Surveillance Log – Modes 1, 2, and 3, Attachment 2, Thermal Limits Check.

Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

General Conditions:

The Plant has been Operating at 100% power for the past 120 days.

Initiating Cue(s):

The Control Room Supervisor directs you to perform a Thermal Limits check in accordance with procedure 6.LOG.601, Daily Surveillance Log – Modes 1, 2, and 3, Attachment 2, Thermal Limits Check.

Record the results of your check and turn in the results to the examiner.

_____
_____
_____
_____
_____
_____

Task No.: None

Title: Determine Tagging Order Release Requirements

Trainee: _____ Examiner: _____

Pass ☐ Fail ☐ Examiner Signature: _____ Date: _____

Additional Program Information:

1. Appropriate Performance Locations: CR / SIM /Classroom
2. Appropriate Trainee level: RO / SRO
3. Evaluation Method: Simulate Perform
4. Performance Time: 20 minutes
5. NRC K/A 2.2.13 (3.6/3.8)

Directions to Examiner:

1. This JPM evaluates the candidate's ability to determine the proper sequence for the release of a Tagging Order and the required release positions in accordance with procedure 0.9 Tagout.
2. Only the cues preceded by "#" should be given.
3. Observe the trainee during performance of the JPM for proper use of self-checking methods.
4. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes/comments section below.
5. Provide trainee with Attachments 2 and 3.
6. Brief the trainee, and tell the trainee to begin.

Notes/Comments: _____

Title: Determine Tagging Order Release Requirements

Directions to Trainee:

When I tell you to begin, you are to determine the proper sequence for the release and the required release positions for a Tagging Order in accordance with procedures 0.9, Tagout and 2.2.30, Fire Protection System.

Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

General Conditions:

1. The Plant is operating at 100 % power.
2. Maintenance has completed replacement of Fire Pump C motor.
3. Maintenance has requested that it be returned to service.

General References:

1. Procedure 2.2.30
2. Procedure 0.9, Tagout

General Tools and Equipment:

1. None

Special Conditions, References, Tools, Equipment:

1. Clearance OrderDGDO-01-4896306 FO TRANSFER.
2. Critical checks denoted by **bold steps.**

Task Standards:

1. The operator determine the proper sequence for the release and the required release positions for a Tagging Order in accordance with procedures 0.9 Tagout and 2.2.30, Fire Protection System.
2. 100% of critical elements successfully completed without error.
3. 100% of safety and radiological work practices.

Title: Determine Tagging Order Release Requirements

Initiating Cue(s):

Determine the proper Sequence for the release of a Tagging Order and the Required Release Positions in accordance with procedures 0.9 Tagout and 2.2.30, Fire Protection System.

Notify the CRS when the release sequence and the required release positions of the Tagging Order is complete.

NOTE: Tell the trainee to begin.

Title: Determine Tagging Order Release Requirements

Start Time: _____

Performance Checklist	Standards	Sat	Unsat
1. Obtain Procedures	The Operator obtained the current revision of Procedure 0.9, Tagout. Selected Section 16 Tagout Section Release and Procedure 2.2.30	____	____
2. Verifies current plant conditions	The Operator recognized the current plant conditions were appropriate to place in standby lineup.	____	____
3. Determine Release position for components	**16.1.1 Obtain Clearance Section: FP-1-4907476 FR-P-C and recorded component positions matching Key.**	____	____
4. Determine release sequence	**16.2 Determined Clearance return sequence per 0.9 and 2.2.30 and recorded sequence numbers matching Key.**	____	____
5. Returned order.	Returned completed order to examiner.	____	____

Stop Time: _____ **Total Time: _____**

Title: Determine Tagging Order Release Requirements

ATTACHMENT 1
Examiner=s copy of component positions
(Answer Key)

Section: FP-1-4907476 FR-P-C

Tag Type ---------- Serial No	Equipment ---------- *Equip Desc *Equip Loc	Pla Seq	Placement Config ---------- *Notes	Place. 1st Verif Date/Time	Place. 2nd Verif Date/Time	Rest Seq	Rest. Config. *As left (If Diff) ---------- *Notes	**Rest. 1st Verif Date/Time**	**Rest. 2nd Verif Date/Time**
Caution **----------** **154602**	**FP-SW-(FP-P-C)** **----------** ***Elec Fire Pump C Control Switch** ***FP Panel**	**1**	**Pull to Lock**	**Operator 1 4/1/14 0100**	**WCO 4/1/14 0200**	**7**	**AUTO** ---------- *Restored per step 6.1 of 2.2.30		
Danger **----------** **152518**	**FP-CB-(FP-P-C)** **----------** ***FP Pump C Circuit Breaker (Disconnect Means)** ***SW Pump Rm North East**	**2**	**OFF**	**Operator 2 4/1/14 0110**	**WCO 4/1/14 0211**	**5**	**OFF** **----------**		
Danger **----------** **152519**	**FP-DSC-(ISO-MEANS)C** **----------** ***C FP Isolating Means Disconnect** ***SW Pump Room North East**	**3**	**OFF** **----------** ***Operate Isolating Means per step 8.2 of 2.2.30**	**Operator 2 4/1/14 0110**	**WCO 4/1/14 0212**	**6**	**ON** **----------**		
Danger **----------** **152589**	**FP-V-469** **----------** ***Fire Pump 1C Disch** ***IS-SWP Rm (East)**	**4**	**CLOSED** **----------** ***Sealed Valve**	**Operator 2 4/1/14 0115**	**WCO 4/1/14 0216**	**4**	**Sealed OPEN** **----------** ***Sealed valve**		

Title: Determine Tagging Order Release Requirements

Danger ---------- 152590	**FP-V-470 ---------- * Hose Nozzle Supply From Pump 1C *IS-SWP Rm (East)**	**5**	**CLOSED ---------- *Sealed Valve**	**Operator 2 4/1/14 0117**	**WCO 4/1/14 0216**	**3**	**Sealed CLOSED ---------- *Sealed valve**		
Danger ---------- 152604	**EE-CB-480E (FP-C) ---------- *C Fire Pump ***This Component Has A Motor Heater*** *480 SWGR-E IS-903**	**6**	**RACKED OUT ---------- *Rack breaker per 2.2.19**	**Operator 2 4/1/14 0121**	**WCO 4/1/14 0222**	**2**	**Racked in/CLOSED ----------**		
Danger ---------- 152605	**EE-PNL-SPIS (11) ---------- *FP 1C Motor Heater *IS-WEST WALL-(South of Roll Up Door)**	**7**	**OFF**	**Operator 2 4/1/14 0122**	**WCO 4/1/14 0222**	**1**	**ON ----------**		

Component	**Note No.**	**Note Text**
EE-CB-480E(FP-C)	**76**	CAUTION - Normal Breaker position is Racked In AND Closed

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to determine the proper sequence for the release and the required release positions for a Tagging Order in accordance with procedures 0.9, Tagout and 2.2.30, Fire Protection System.

Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

General Conditions:

1. The Plant is operating at 100 % power.
2. Maintenance has completed replacement of Fire Pump C motor.
3. Maintenance has requested that it be returned to service.

Initiating Cue(s):

Determine the proper Sequence for the release of a Tagging Order and the Required Release Positions in accordance with procedures 0.9 Tagout and 2.2.30, Fire Protection System.

Notify the CRS when the release sequence and the required release positions of the Tagging Order is complete.

Attachment 3

Candidate's copy of Component positions

Section: FP-1-4907476 FR-P-C

Tag Type ---------- Serial No	Equipment ---------- *Equip Desc *Equip Loc	Pla Seq	Placement Config ---------- *Notes	Place. 1st Verif Date/Time	Place. 2nd Verif Date/Time	Rest Seq	Rest. Config. *As left (If Diff)	**Rest. 1st Verif Date/Time**	**Rest. 2nd Verif Date/Time**
Caution **----------** **154602**	**FP-SW-(FP-P-C)** **----------** ***Elec Fire Pump C Control Switch** ***FP Panel**	**1**	**Pull to Lock**	**Operator 1** **4/1/14 0100**	**WCO** **4/1/14 0200**				
Danger **----------** **152518**	**FP-CB-(FP-P-C)** **----------** ***FP Pump C Circuit Breaker (Disconnect Means)** ***SW Pump Rm North East**	**2**	**OFF**	**Operator 2** **4/1/14 0110**	**WCO** **4/1/14 0211**				
Danger **----------** **152519**	**FP-DSC-(ISO-MEANS)C** **----------** ***C FP Isolating Means Disconnect** ***SW Pump Room North East**	**3**	**OFF** **----------** ***Operate Isolating Means per step 8.2 of 2.2.30**	**Operator 2** **4/1/14 0110**	**WCO** **4/1/14 0212**				
Danger **----------** **152589**	**FP-V-469** **----------** ***Fire Pump 1C Disch** ***IS-SWP Rm (East)**	**4**	**CLOSED** **----------** ***Sealed Valve**	**Operator 2** **4/1/14 0115**	**WCO** **4/1/14 0216**				
Danger **----------** **152590**	**FP-V-470** **----------** *** Hose Nozzle Supply From Pump 1C** ***IS-SWP Rm (East)**	**5**	**CLOSED** **----------** ***Sealed Valve**	**Operator 2** **4/1/14 0117**	**WCO** **4/1/14 0216**				

Danger ---------- 152604	**EE-CB-480E (FP-C) ---------- *C Fire Pump ***This Component Has A Motor Heater*** *480 SWGR-E IS-903**	**6**	**RACKED OUT ---------- *Rack breaker per 2.2.19**	**Operator 2 4/1/14 0121**	**WCO 4/1/14 0222**				
Danger ---------- 152605	**EE-PNL-SPIS (11) ---------- *FP 1C Motor Heater *IS-WEST WALL-(South of Roll Up Door)**	**7**	**OFF**	**Operator 2 4/1/14 0122**	**WCO 4/1/14 0222**				

Component	**Note No.**	**Note Text**
EE-CB-480E(FP-C)	**76**	CAUTION - Normal Breaker position is Racked In AND Closed

Task No.:

Task Title: Radiation Protection Table Top

Trainee: _____ Examiner: _____

Pass ☐ Fail ☐ Examiner Signature: _____ Date: _____

Additional Program Information:

1. Appropriate Performance Locations: CR, SIM, Classroom
2. Appropriate Trainee level: RO, SRO
3. Evaluation Method: __ Simulate __ Perform
4. Performance Time: 10 minutes
5. NRC K/A 2.3.13 (3.4/3.8)

Directions to Examiner:

1. This JPM evaluates the trainee's ability to determine if certain work can be performed within the confines of the Code of Federal Regulations and CNS procedures.
2. This JPM can be performed any place the operator can access appropriate procedures.
3. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes section below.
4. Give the trainee his copy of the Directions to the Trainee (Attachment 1) when ready to start the JPM.
5. Brief the trainee and tell the trainee to begin.

Notes: _____
_____
_____
_____
_____
_____
_____
_____
_____

Directions to Trainee:

When I tell you to begin, you are to determine whether John Doe can perform in-vessel work for which he is specially qualified. **If you find he cannot perform the work state the reason why**. **If John Doe can perform the work, state what authorization, if any is required prior to performing the work.** Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

Task No.:

Task Title: Radiation Protection Table Top

General Conditions:

1. The plant is shutdown to perform in-vessel work.
2. John Doe has been selected for a particular job in vessel.

General References:

1. 10CFR20
2. 9.ALARA.1, PERSONNEL DOSIMETRY AND OCCUPATIONAL RADIATION EXPOSURE PROGRAM.

General Tools and Equipment:

1. None.

Special Conditions, References, Tools, Equipment:

1. Critical checks denoted **in bold**.

Task Standards:

1. The student determines the work can be performed and the department personnel that must approve the dose.
2. 100% of critical elements successfully completed without error.

Initiating Cue(s):

John Doe has unique skills to perform special in vessel work. Performance of the work is expected to result in a whole body dose of 550 mRem. The Shift Manager directs you to determine based on John Doe's dose history, whether he is capable of performing this work. When I tell you to begin, you are to determine whether John Doe can perform the in-vessel work. **If you find he cannot perform the work state the reason why**. **If John Doe can perform the work, state what authorization, if any is required prior to performing the work.** Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

Task No.:

Task Title: Radiation Protection Table Top

Time Start: _____

Performance Checklist	Standards	Sat	Unsat
1. Refer to 9.ALARA.1	Procedure 9.ALARA.1 referenced.		
2. Pertinent personal Dose history is reviewed.	9.ALARA.1 step 6.7.2.1 .Dose History is reviewed.		
3. Pertinent job dose projections for the job are reviewed.	Dose projections are reviewed.		
4. Compares the job requirements to the amount of dose that can be received.	Job requirements are reviewed.		
5. Calculates expected cumulative dose.	**9.ALARA.1 step 6.2.1.2. Expected cumulative dose is calculated at 2.050 Rem on-site and 2.250 Rem total.**		
6. Off-site dose verified within limit.	**9.ALARA.1 step 6.2.1.2. Operator verifies off-site dose does not exceed 1.5 Rem (1500 mrem).**		
7. Informs the SM that he can perform this job.	**9.ALARA.1 step 6.2.1.2. The Operator informs the Shift Manager that the work can be done, but the Department Manager, RP Technical Supervisor, Radiation Protection Manager, and the GMPO must authorize the dose extension above 2,000 mRem.**		

Time Stop: _____ **Total Time: _____**

ATTACHMENT 1

Directions to Trainee:

When I tell you to begin, you are to determine whether John Doe can perform in-vessel work for which he is specially qualified. **If you find he cannot perform the work state the reason why**. **If John Doe can perform the work, state what authorization, if any is required prior to performing the work.** Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

General Conditions:

1. The plant is shutdown to perform in-vessel work.
2. You have been selected for a particular job in vessel.

Initiating Cue(s):

John Doe has unique skills to perform special in vessel work. Performance of the work is expected to result in a whole body dose of 550 mRem. The Shift Manager directs you to determine based on John Doe's dose history, whether he is capable of performing this work. When I tell you to begin, you are to determine whether John Doe can perform the in-vessel work. **If you find he cannot perform the work state the reason why**. **If John Doe can perform the work, state what authorization, if any is required prior to performing the work.** Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

ATTACHMENT 1

Your Pertinent Statistics	
John Doe's Age: **35 years**	**Lifetime TEDE**: **32 Rem**
On-Site TEDE so far this year: 1.5 Rem **Off-Site TEDE so far this year: 0.2 Rem**	

Pertinent Job Dose Projections for the one individual performing this job
Projected Whole Body Dose: 550 mRem

Results:

Perform the Job: Yes No
Circle one

If allowed to perform the work, who's authority is needed first?

_____
_____
_____
_____
_____
_____

_____
Signature

Task No.: 200225A0501

Task Title: Suppression Pool Temp Calculation (Alternate Path)

Trainee: _____ Examiner: _____

Pass ☐ Fail ☐ Examiner Signature: _____ Date: _____

ALTERNATE PATH JPM

Additional Program Information:

1. Appropriate Performance Locations: Control Room / Classroom / Simulator
2. Appropriate Trainee Levels: RO / SRO / STE
3. Evaluation Method: ___ Simulate ___ Perform
4. Performance Time: 10 minutes
5. K/A: A295013 AA201 (3.8/4.0) 2.1.12 (2.9/4.0)

NOTE: THIS IS AN ALTERNATE PATH JPM. Some temperatures are upscale and an alternate method must be used to obtain the average temperature.

Directions to Examiner:

1. The intent of this JPM is to present a trainee a set of conditions for determination of average Torus temperature upon loss of SPDS and to make expected recommendations to the Control Room Supervisor, in accordance with procedure 5.8.9, Average Suppression Pool Temperature Calculation.
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes/comments section below.
4. Give the trainee his copy of the Directions to the Trainee (Attachment 2) when ready to start the JPM.
5. **IF NOT** performing in the simulator, give the trainee a copy of Attachment 3.
6. Brief the trainee and tell the trainee to begin.

Notes/Comments: _____
_____
_____
_____
_____
_____
_____

Task No.: 200225A0501

Task Title: Suppression Pool Temp Calculation (Alternate Path)

Directions to Trainee:

When I tell you to begin, you are to use the provided attachment to determine average Torus temperature and make expected recommendations to the Control Room Supervisor, in accordance with procedure 5.8.9, Average Suppression Pool Temperature Calculation.

Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

If being simulated in the Control Room:

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. RHR “A” Loop is in Torus cooling
2. Activities have been in progress that added significant heat to the torus.
3. PMIS/SPDS is unavailable.

General References:

1. Procedure 5.8.9; Average Suppression Pool Temperature Calculations

General Tools and Equipment:

1. None

Special Conditions, References, Tools, Equipment:

1. Critical checks denoted by "*".
2. Simulator cues denoted by "#".

Task No.: 200225A0501

Task Title: Suppression Pool Temp Calculation (Alternate Path)

Task Standards:

1. 100% of critical elements successfully completed without error.
2. 100% of safety and radiological work practices.

Initiating Cue(s):

You are to determine average Torus temperature per ESP 5.8.9. Average Suppression Pool Temperature Calculation.

Return the completed Attachment 1 of 5.8.9 to the Control Room Supervisor when you have completed this task.

Task No.: 200225A0501

Task Title: Suppression Pool Temp Calculation (Alternate Path)

Start Time: _____

Performance Checklist	Standards	Sat	Unsat
1. Obtains Procedure 5.8.9, SP Temperature Calculations	Obtained Procedure 5.8.9, Attachment 1.	____	____
2. Record time.	The operator recorded the current time on Attachment 1 of 5.8.9.	____	____
3. Notes that two temperatures are upscale and proceeds to Step 3.2.	**The operator recorded the four (4) highest suppression pool temperatures but notes that two are upscale and proceeds to Step 3.2.** **CUE: When the Operator finds the correct recorders provide them with the marked up pictures of the recorders (Attachment 3) and tell him to use them instead of the values on the panel mounted recorders.**	____	____
4. Recognizes that "A" RHR is in Torus Cooling.	**The operator noted that "A" RHR is in Torus Cooling and performs step 3.2.1.** **CUE: When the Operator finds the correct recorder provide them with the marked up picture of the recorder (Attachment 3) and tell him to use them instead of the values on the panel mounted recorder.**	____	____
5. Finds temperature on PC-TR-131 for RHR A Loop.	**The operator noted that the temperature for the suction of the RHR loop in SPC is 120^0F on RHR-TR-131 CH1.** **Allowable values: 120^0F**	____	____

Task No.: 200225A0501

Task Title: Suppression Pool Temp Calculation (Alternate Path)

Performance Checklist	Standards	Sat	Unsat
6. Returns the completed Attachment 1 to the examiner.	The operator returned the completed Attachment 1 to the Control Room Supervisor. # - The CRS accepts the completed form, this JPM is Complete.	____	____

Stop Time: _____ **Stop Time:** _____

Task No.: 200225A0501

Task Title: Suppression Pool Temp Calculation (Alternate Path)

ATTACHMENT 1

SIMULATOR SET-UP

A. Materials required

None

B. Initialize the Simulator in any IC that has or had the reactor at power (IC-18, 19 or 20 suggested)

Batch File name - None.

C. Change the Simulator conditions from those of the IC as follows:

1. Triggers

Number	File Name	Description
	None	

2. Malfunctions

Number	Title	Trigger	TD	Severity	Ramp	Initial
None						

3. Remotes

Number	Title	Trigger	Value	Ramp
None				

4. Overrides

Task No.: 200225A0501

Task Title: Suppression Pool Temp Calculation (Alternate Path)

Instrument	Tag	Trigger	TD	Value	Ramp
PC-TR-24 Channel 1	20A1AR1 Chan 1	N/A	N/A	115.1^{0}F	N/A
PC-TR-24 Channel 2	20A1AR1 Chan 2	N/A	N/A	250.0^{0}F	N/A
PC-TR-24 Channel 3	20A1AR1 Chan 3	N/A	N/A	121.9^{0}F	N/A
PC-TR-24 Channel 4	20A1AR1 Chan 4	N/A	N/A	124.9^{0}F	N/A
PC-TR-24 Channel 5	20A1AR1 Chan 5	N/A	N/A	118.2^{0}F	N/A
PC-TR-24 Channel 6	20A1AR1 Chan 6	N/A	N/A	120.3^{0}F	N/A
PC-TR-24 Channel 7	20A1AR1 Chan 7	N/A	N/A	121.0^{0}F	N/A
PC-TR-24 Channel 8	20A1AR1 Chan 8	N/A	N/A	118.1^{0}F	N/A
PC-TR-25 Channel 1	20A1AR2 Chan 1	N/A	N/A	118.1^{0}F	N/A
PC-TR-25 Channel 2	20A1AR2 Chan 2	N/A	N/A	128.2^{0}F	N/A
PC-TR-25 Channel 3	20A1AR2 Chan 3	N/A	N/A	124.9^{0}F	N/A
PC-TR-25 Channel 4	20A1AR2 Chan 4	N/A	N/A	250.0^{0}F	N/A
PC-TR-25 Channel 5	20A1AR2 Chan 5	N/A	N/A	115.2^{0}F	N/A
PC-TR-25 Channel 6	20A1AR2 Chan 6	N/A	N/A	124.3^{0}F	N/A
PC-TR-25 Channel 7	20A1AR2 Chan 7	N/A	N/A	117.0^{0}F	N/A
PC-TR-25 Channel 8	20A1AR2 Chan 8	N/A	N/A	125.1^{0}F	N/A
RHR-TR-131 Channel 1	07A1AR6 Chan 1	N/A	N/A	120^{0}F	N/A
RHR-TR-131 Channel 2	07A1AR6 Chan 2	N/A	N/A	95^{0}F	N/A
RHR-TR-131 Channel 3	07A1AR6 Chan 3	N/A	N/A	118^{0}F	N/A
RHR-TR-131 Channel 4	07A1AR6 Chan 4	N/A	N/A	88^{0}F	N/A
RHR-TR-131 Channel 5	07A1AR6 Chan 5	N/A	N/A	98^{0}F	N/A
RHR-TR-131 Channel 6	07A1AR6 Chan 6	N/A	N/A	98^{0}F	N/A

5. Panel Set-up (suggested. Any setup is allowed that supports performance of this JPM.

   a. Place the Simulator in RUN.
   b. Insert Batch File

Note: If this JPM is to be performed more than once, snap the Simulator into an IC after the panel set-up is complete.

Task No.: 200225A0501

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to use the provided attachment to determine average Torus temperature and make expected recommendations to the Control Room Supervisor, in accordance with procedure 5.8.9, Average Suppression Pool Temperature Calculation.

Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

If being simulated in the Control Room:

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. RHR “A” Loop is in Torus cooling
2. Activities have been in progress that added significant heat to the torus.
3. PMIS/SPDS is unavailable.

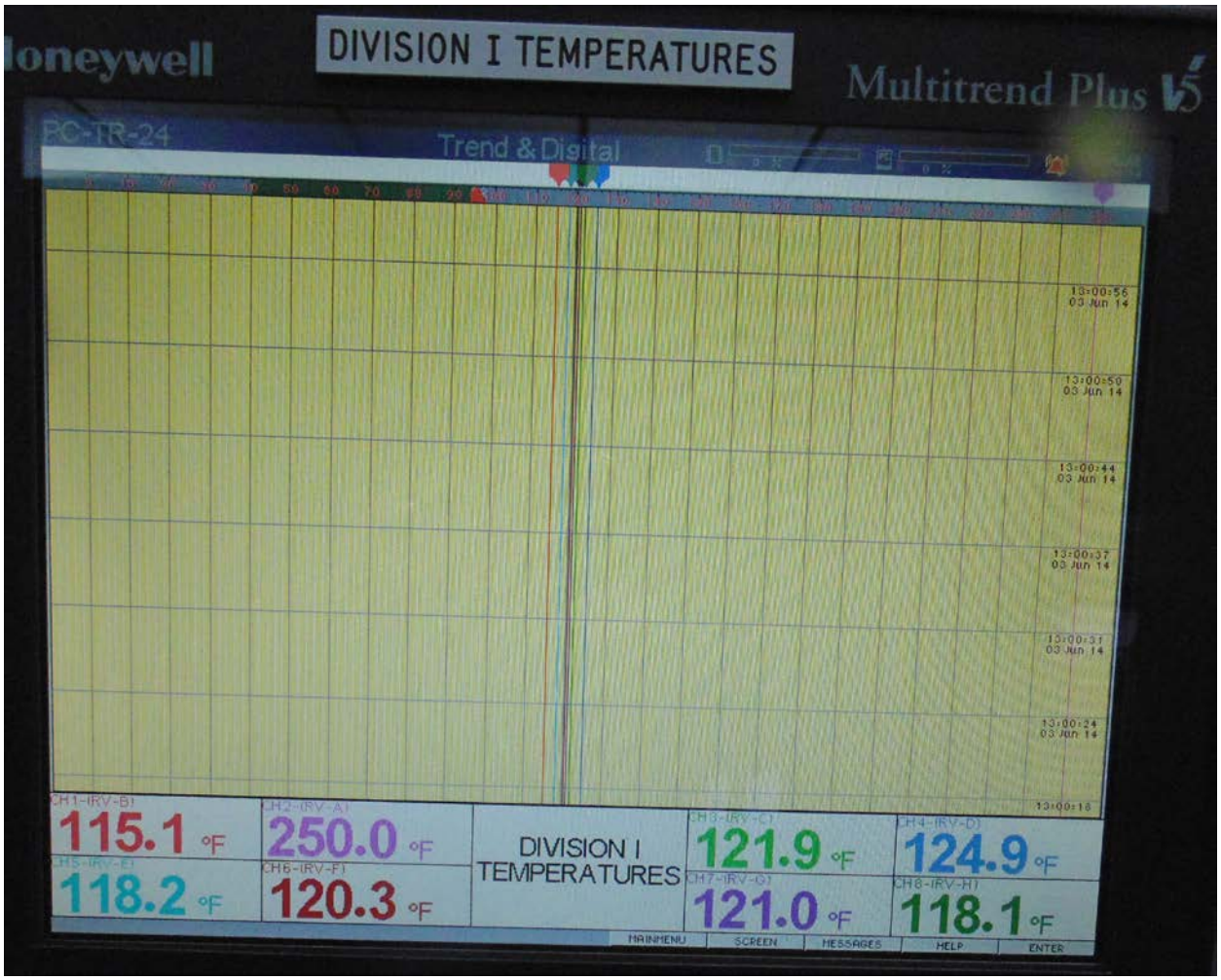
Initiating Cue:

You are to determine average Torus temperature per ESP 5.8.9. Average Suppression Pool Temperature Calculation.

Return the completed Attachment 1 of 5.8.9 to the Control Room Supervisor when you have completed this task.

Task No.: 200225A0501

ATTACHMENT 3

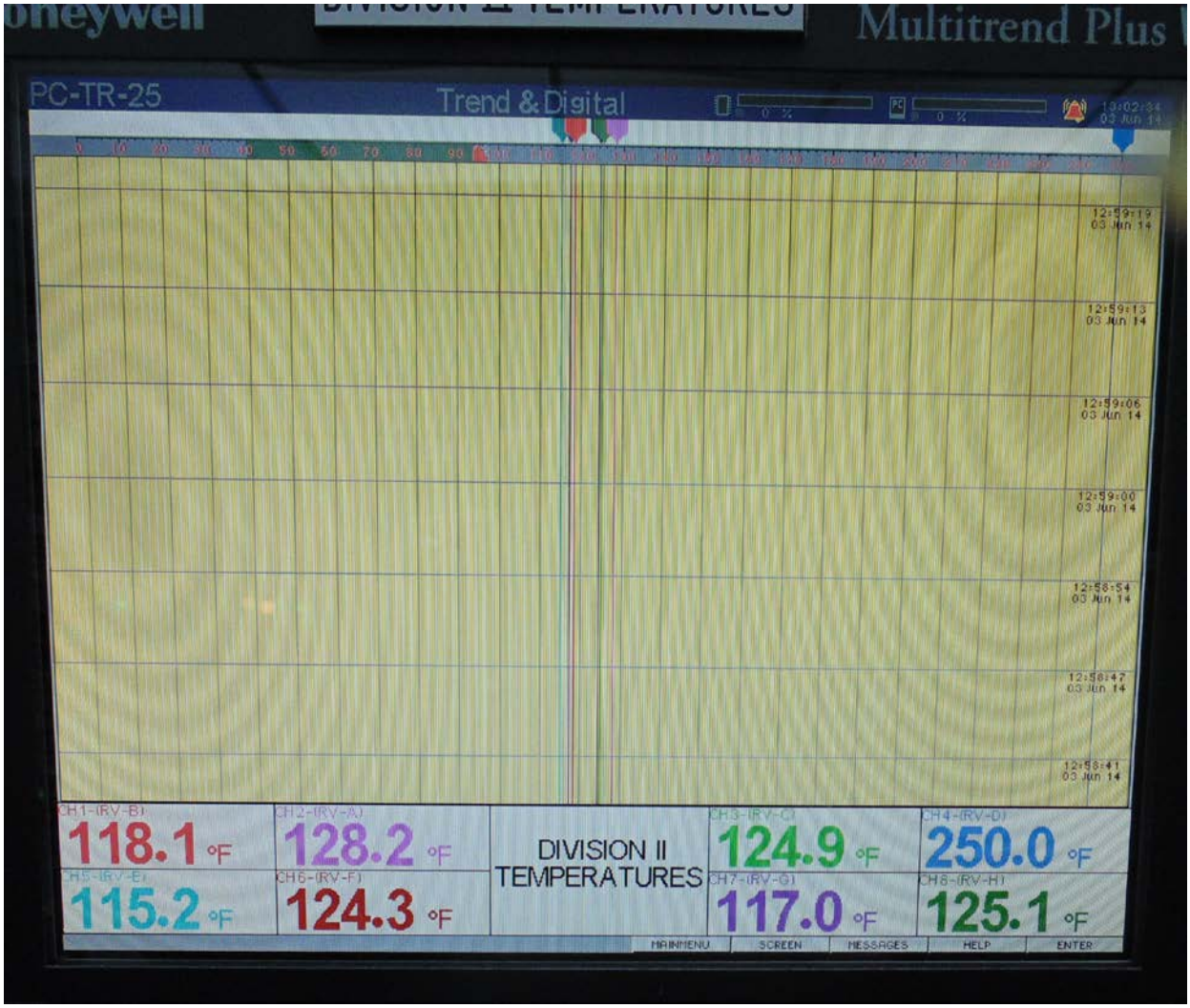


SUPPR POOL TEMP RECORDER

PC-TR-24

Task No.: 200225A0501

ATTACHMENT 3

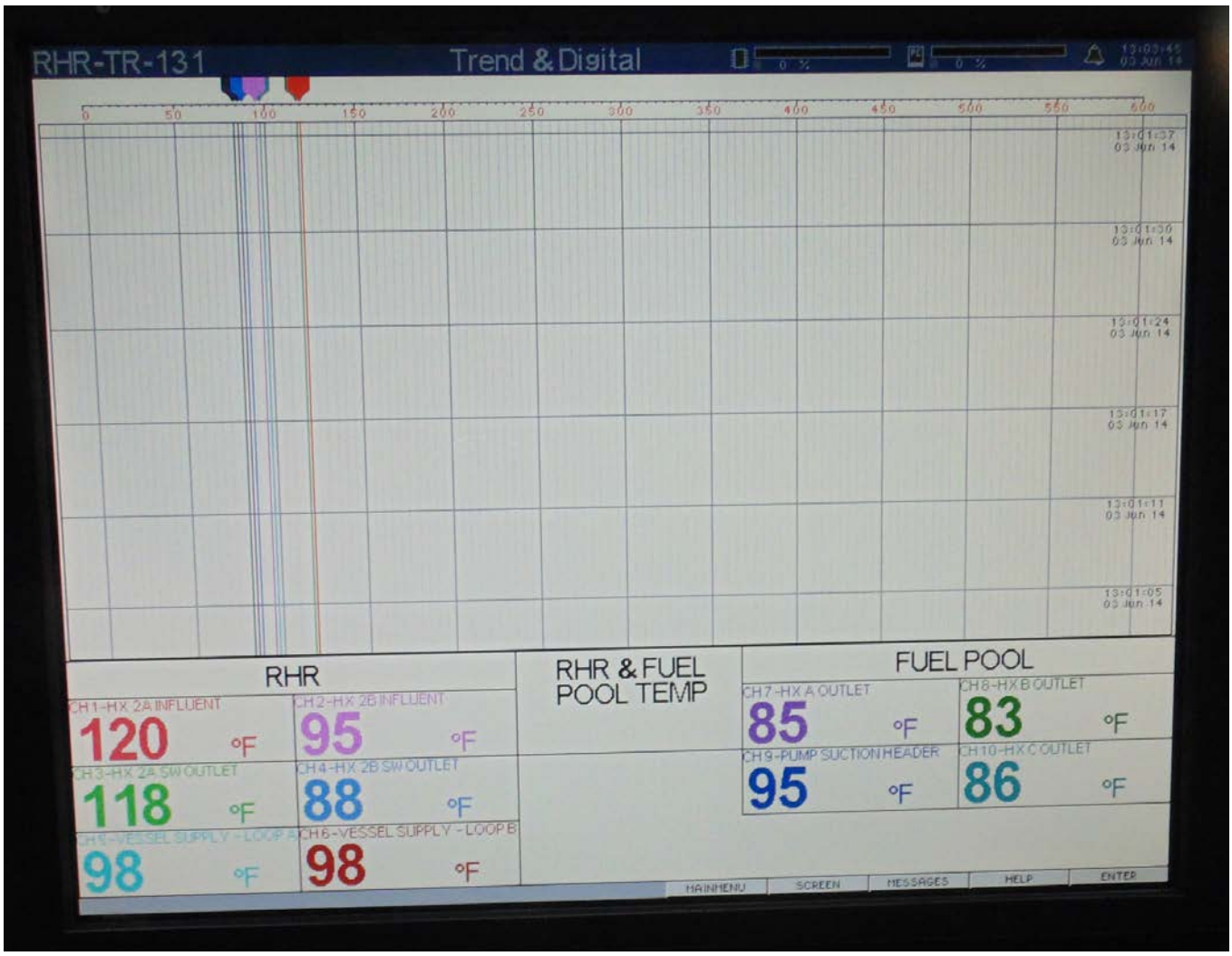


SUPPR POOL TEMP RECORDER

PC-TR-25

Task No.: 200225A0501

ATTACHMENT 3



RHR HEAT EXCHANGER TEMPERATURE RECORDER

RHR-TR-131

Task No.: 344077S0403

Title: Determine the Action for Plant Chemistry Out of Specification (Alt. Path)

Trainee: _____ Examiner: _____

Pass ☐ Fail ☐ Examiner Signature: _____ Date: _____

Additional Program Information:

1. Appropriate Performance Locations: Classroom
2. Appropriate Trainee level: SRO
3. Evaluation Method: Simulate
4. Performance Time: 20 minutes
5. NRC K/A 2.1.34 (SRO 3.5)

Directions to Examiner:

1. This JPM evaluates the trainee's ability to review Reactor Coolant Chemistry parameters and take actions for plant chemistry out of specifications in accordance with Procedure 2.4CHEM.
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. Observe the trainee during performance of the JPM for proper use of self-checking methods.
4. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes/comments section below.
5. Brief the trainee and tell the trainee to begin.

Notes/Comments: _____

Title: Determine the Action for Plant Chemistry Out of Specification (Alt. Path)

Directions to Trainee:

When I tell you to begin, you are to perform a Shift Manager review of Reactor Coolant Chemistry data and inform me when actions are complete. Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

General Conditions:

1. The Plant has been Operating at 100% power for the past 120 days.

General References:

1. Procedure 2.4 CHEM, Chemistry Parameter Out of Limit
2. TRM Section 3.4.1, Reactor Coolant System
3. Chemistry Procedure 8.3, Control Parameters and Limits

General Tools and Equipment:

1. None

Special Conditions, References, Tools, Equipment:

Procedure 2.4 CHEM, Chemistry Parameter Out of Limit
TRM Section 3.4.1, Reactor Coolant System
Chemistry Procedure 8.3, Control Parameters and Limits
Critical checks denoted **in bold.**
Simulator cues denoted by "**#**".

Task Standards:

1. The operator recognizes that plant chemistry is out of specification and determines that TLCO 3.4.1 has been exceeded and TRM entry is required.
2. 100% of critical elements successfully completed without error.
3. 100% of safety and radiological work practices.

Initiating Cue(s):

Title: Determine the Action for Plant Chemistry Out of Specification (Alt. Path)

When I tell you to begin, you are to perform a Shift Manager review of Reactor Coolant Chemistry data and inform me when actions are complete.

Chemistry has conducted a reactor coolant sample in accordance with Chemistry Procedure 8.3, Control Parameters and Limits, and notified you of the following results:

Conductivity	10.0 umho/cm
Chlorides	12.0 ppb
pH	6.9
Sulfates	0.77 ppb
Silica	25 ppb
Sodium	2.1 ppb
Calcium	2.0 ppb
Zinc	2.6 ppb
Tritium	Non Detectable
Boron	Non Detectable

Notify the Shift Manager when your review is complete, including any action taken.

Start Time: _____

Performance Checklist	Standards	Sat	Unsat
1. Reviews data.	**The Operator recognizes that conductivity is out of specification and enters Procedure 2.4CHEM.**		
2. Obtain Procedure.	Obtained the current revision of Procedure 2.4CHEM. Selects Section 1.0.		
3. Entry Condition met.	1.1.1 Operator recognized Reactor power > 10% RTP and Reactor water conductivity > 1.0 μmho limit was exceeded and continued to Section 4.0 Subsequent Operator Actions.		
4. Date and Time entered.	4.1 Operator records the current date and time.		
5. TRM limit exceeded.	**4.2 Operator determined the TRM limit for TLCO 3.4.1 are exceeded and refers to TRM condition "B" and determines Action B.1 is required 72 hours from the time the limits were exceeded for required condition.**		
6. Notify Chemistry.	4.3 Operator notifies Chemistry that Conductivity is out-of-limit.		
5 Notifies Operations Manager.	Operator notifies Operations Manager that reactor coolant chemistry is out of specification and exceeded the limit for Conductivity in table 3.4.1-1 and must be returned to within limit within 72 hours from the time the limit was exceeded.		

Stop Time: _____ **Total Time: _____**

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to perform a Shift Manager review of Reactor Coolant Chemistry data and inform me when actions are complete. Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

General Conditions:

The Plant has been Operating at 100% power for the past 120 days.

Initiating Cue(s):

The Shift Manager directs you, as the CRS, to review Reactor Coolant Chemistry sample parameters below and record any take action, if required, for continued plant operation.

Chemistry has conducted a reactor coolant sample in accordance with Chemistry Procedure 8.3, Control Parameters and Limits, and notified you of the following results:

Conductivity	10.0 umho/cm
Chlorides	12.0 ppb
pH	6.9
Sulfates	0.77 ppb
Silica	25 ppb
Sodium	2.1 ppb
Calcium	2.0 ppb
Zinc	2.6 ppb
Tritium	Non Detectable
Boron	Non Detectable

Notify the CRS when your review is complete, including any action taken.

Record your actions/findings below:

_____
_____
_____
_____
_____
_____
_____

_____
Signature

Task No.: 341033W0303

Title: Determine Shift Staffing Requirements for Mode Change

Trainee: _____ Examiner: _____

Pass ☐ Fail ☐ Examiner Signature: _____ Date: _____

Additional Program Information:

1. Appropriate Performance Locations: CR / SIM / Classroom
2. Appropriate Trainee level: RO / SRO / STE
3. Evaluation Method: **Perform**
4. Performance Time: 10 minutes
5. K/A 2.1.4 (3.4)

Directions to Examiner:

1. This JPM evaluates the trainee's ability to determine shift staffing requirements for a mode change.
2. Observe the trainee during performance of the JPM for proper use of self-checking methods.
3. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes section below.
4. Give the examinee Attachment 1.
5. Brief the trainee, and tell the trainee to begin.

Notes: _____

Title: Determine Shift Staffing Requirements for Mode Change

Directions to Trainee:

When I tell you to begin, you are to evaluate the staff available and determine if a change in Modes is allowed. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

General Conditions:

1. The plant conditions are as follows:
   - Reactor Pressure is 0 psig and steady.
   - Coolant temperature is 200°F and steady.
   - All reactor vessel head closure bolts are fully tensioned.
   - Mode Switch is in Shutdown

2. Your Shift complement is comprised of:
   - One SRO (you)
   - Two ROs
   - Three Non-Licensed Nuclear Plant Operators
   - One RP/Chem Tech

General References:

1. Conduct of Operations Procedure 2.0.3

General Tools and Equipment:

1. None

Special Conditions, References, Tools, Equipment:

1. Critical checks denoted **in bold**.

Task Standards:

1. Determines current staffing is adequate, and additional staffing will be required when the mode change is made.
2. 100% of critical elements successfully completed without error.
3. 100% of safety and radiological work practices.

Title: Determine Shift Staffing Requirements for Mode Change

Initiating Cue(s):

During your shift Reactor Coolant temperature is expected to rise to 215°F as a result of Shutdown Cooling being removed from service. As the Senior Licensed person on your shift, you are to determine **two** things;

1. Do you have sufficient staff now, and

2. will you have sufficient staff to allow you to raise Coolant Temperature to 215°F during your shift. If not determine how many additional staff types are needed and document your findings on Attachment 1.

NOTE: Tell the trainee to begin.

Title: Determine Shift Staffing Requirements for Mode Change

Start Time: _____

Performance Checklist	Standards	Sat	Unsat
1. Obtain Procedure 2.0.3.	Current revision of 2.0.3 obtained.		
2. Determines the current mode.	The SRO may use Tech Specs to confirm that the Unit is in MODE 4.		
3. **Determines the mode to be entered when temperature rises to 215ºF.**	**The SRO may use Tech Specs to confirm that the Unit will be entering Mode 3 within the shift.**		
4. **Determines that the current shift staff is adequate until the mode change.**	**Your Shift complement is comprised of:** • **One SRO (you)** • **Two ROs** • **Three Non-Licensed Nuclear Plant Operators** • **One RP/Chem Tech** •		
5. **Determines which staff types are required.**	**For Mode 3 the SRO determines the following staff types are needed:** • **Two SRO (so there is a SM and a CRS)** • **Three RO (RO, BOP, WCO)** • **Three Non-Licensed Nuclear Plant Operators** • **One STE** • **One RP/Chem Tech**		
6. **Records the needed Staff on Attachment 1.**	**SRO records the additional needed staff on Attachment 1.** • **One SRO (so there is a SM and a CRS)** • **One RO (RO, BOP, WCO)** • **One STE**		

Performance Checklist	Standards	Sat	Unsat
7. Turns in completed paperwork.	Returns completed Attachment 1 to evaluator**.**		

Stop Time: _____ **Total Time: _____**

ATTACHMENT 1

Directions to Trainee:

When I tell you to begin, you are to evaluate the staff available and determine if a change in Modes is allowed. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

General Conditions:

1. The plant conditions are as follows:
   - Reactor Pressure is 0 psig and steady.
   - Coolant temperature is 200°F and steady.
   - All reactor vessel head closure bolts are fully tensioned.
   - Mode Switch is in Shutdown

3. Your Shift complement is comprised of:
   - One SRO (you)
   - Two ROs
   - Three Non-Licensed Nuclear Plant Operators
   - One RP/Chem Tech

Initiating Cue(s):

During your shift Reactor Coolant temperature is expected to rise to 215°F as a result of Shutdown Cooling being removed from service. As the Senior Licensed person on your shift, you are to determine **two** things;

1. Do you have sufficient staff now, and

2. will you have sufficient staff to allow you to raise Coolant Temperature to 215°F during your shift. If not determine how many additional staff types are needed and document your findings on Attachment 1.

Current Staff:
(Check one) ☐ Adequate in current mode ☐ Inadequate in current mode

Additional needed staff:_____

Staff required at 215ºF:
(Check one) ☐ Current staff adequate ☐ Additional staff needed.

Additional needed staff: _____

Task No.: 200302G0203

Title: Determine Post-Maintenance Testing Requirements

Trainee: _____ Examiner: _____

Pass:____ Fail:____ Examiner Signature:_____ Date:_____

Additional Program Information:

1. Appropriate Performance Locations: Classroom
2. Appropriate Trainee level: SRO / STE
3. Evaluation Method: Perform _____ Simulate _____
4. Performance Time: 10 minutes
5. NRC K/A 2.2.7 (2.0/3.2)

Directions to Examiner:

1. This JPM evaluates the trainees ability to determine the post maintenance testing for RHR-MOV-MO26A following bonnet gasket replacement per Maintenance Procedure 7.0.5, Post-maintenance Testing.
2. Observe the trainee during performance of the JPM for proper use of self-checking methods.
3. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes/comments section below.
4. Give the trainee his copy of the Directions to the Trainee (Attachment 1) when ready to start the JPM.
5. Brief the trainee and tell the trainee to begin.

Directions to Trainee:

When I tell you to begin, you are to determine the post maintenance testing for RHR-MOV-MO26A following bonnet gasket replacement. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

Task No.: 200302G0203

Title: Determine Post-Maintenance Testing Requirements

General Conditions:

1. The Reactor is shutdown with an outage in progress.

General References:

1. Procedure 7.0.5, POST MAINTENANCE TESTING
2. Procedure 0.26, SURVEILLANCE PROGRAM

General Tools and Equipment:

1. None

Special Conditions, References, Tools, Equipment:

1. Critical steps denoted in **bold text.**

Task Standards:

1. 100% of critical elements successfully completed without error.
2. 100% of safety and radiological work practices.

Initiating Cue(s):

The Shift Manager directs you to determine the post maintenance testing requirements to assign to RHR-MOV-MO26A following bonnet gasket replacement. Inform the Shift Manager when you have determined the requirements.

Performance Checklist	Standard	SAT	Unsat
1. Obtains Procedure 7.0.5, Post Maintenance Testing.	The Operator obtained the current revision of 7.0.5.		
2. Identify component type for RHR-MOV-MO26A.	Determines that RHR-MOV-MO26A is a motor operated gate valve		
3. Locate the general component from Procedure 7.0.5 Attachment 1 index.	Candidate locates the Component Test Matrices for Motor Operated Valve (Gate/Globe).		

Task No.: 200302G0203

Title: Determine Post-Maintenance Testing Requirements

Performance Checklist	Standard	SAT	Unsat
4. Identify, on the matrices, the type of corrective and/or preventive maintenance to be performed on RHR-MOV-MO26A.	Candidate Identifies Bonnet Gasket Replacement on the Matrices.		
5. **Determine the test activities for the bonnet gasket replacement on RHR-MOV-MO26A.**	**From attachment 1, the candidate assigns Leak Test, Static VOTES test. (Open/Closed Flow test is not required for this valve.**		

NOTE: **In the following step the student MAY elect to perform only portions of the following surveillances as indicated in Procedure 0.26, Surveillance Program. 6.PC.501 is overall procedure. 6.PC.518 is the RHR LLRT procedure.**

6. Determine the test procedures indicated by Procedure 7.0.5, Attachment 2.	**Candidate assigns 6.PC.501 (LLRT), 6.1RHR.201 (Timed IST FSO/FSC), and 6.MISC.401 (Position Indication) to post maintenance testing.**		
7. Shift manager informed.	Informs the Shift Manager of the post maintenance testing requirements to assign to the work package		

ATTACHMENT 1

Directions to Trainee:

When I tell you to begin, you are to determine the post maintenance testing for RHR-MOV-MO26A following bonnet gasket replacement. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. The Reactor is shutdown with an outage in progress.

Initiating Cue(s):

The Shift Manager directs you to determine the post maintenance testing requirements to assign to RHR-MOV-MO26A following bonnet gasket replacement. Inform the Shift Manager when you have determined the requirements.

Task No.: 200335G0503

Title: PAR Table Top X

Trainee: _____ Examiner: _____

Pass ☐ Fail ☐ Examiner Signature: _____ Date: _____

Additional Program Information:

1. Appropriate Performance Locations: Classroom / SIM
2. Appropriate Trainee level: SRO / STE
3. Evaluation Method: **Perform**
4. Performance Time: 10 minutes
5. K/A: 2.4.44 (2.1 / 4.0)

Directions to Examiner:

1. This JPM evaluates the trainee's ability to make a PAR Recommendation.
2. Observe the trainee during performance of the JPM for proper use of self-checking methods.
3. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes section below.
4. Brief the trainee, and tell the trainee to begin.

Notes: _____

Title: PAR Table Top X

Directions to Trainee:

When I tell you to begin, you are to determine Protective Action Recommendations for the provided conditions. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

During task performance, it is recommended that you limit your discussion/demonstration to the minimum required. The examiner may ask questions of you if necessary to understand your actions.

General Conditions:

1. A General Emergency (GE) has been declared under EAL 2.4.1.
2. There IS a radioactive release in excess of ODAM limits at this time.
3. ERP release rate is 1.33E9 µCi/sec
4. A steam leak from HPCI is occurring.
5. CNS-DOSE is NOT available due to software error.
6. The core is degraded.
7. The stability class is “F”.
8. The wind is at 5 mph.
9. The wind is from 270°
10. There is NO precipitation
11 The below information has been determined a using hand calculation from EPIP 5.7.17

DOSE Projection Data				
Distance From Plant	Projected Integrated Dose (Rem)		Projected Dose Rate (Rem/hr)	
	TEDE	CDE (Thyroid)	TEDE	CDE (Thyroid)
Site Boundary	1.63E-05	4.39E-05	4.08E-6	1.10E-05
2 Miles	5.64E-02	1.52E-01	1.41E-02	3.80E-02
5 Miles	7.57E-01	2.04E-00	1.89E-01	5.10E-01
10 Miles	1.25E-00	2.69E-00	205E-01	6.73E-01

Title: PAR Table Top X

General References:

1. Procedure 5.7.1, EAL Matrix
2. Procedure 5.7.6, Attachment 3
3. Procedure 5.7.20

General Tools and Equipment:

1. None

Special Conditions, References, Tools, Equipment:

1. Critical checks denoted **in bold**.

Task Standards:

1. The trainee correctly determines affected Sectors and determines evacuation and sheltering Sectors.
2. 100% of critical elements successfully completed without error.
3. 100% of safety and radiological work practices.

Initiating Cue(s):

You are to determine the appropriate Protective Action Recommendations (PARs) for the provided conditions. Complete the PAR table and return it to the examiner when you have completed this task.

NOTE: Tell the trainee to begin.

Task No.: 200335G0503

Title: PAR Table Top X

Start Time: _____

Performance Checklist	Standards	Sat	Unsat
1. Refer to Procedure 5.7.2.	The operator may refer to Procedure 5.7.2. Determines 5.7.20 must be used for PARs.		
2. Refer to Procedure 5.7.20.	The operator refers to Procedure 5.7.20.		
3. **Determines affected sectors.**	**The operator determines the affected sectors for wind direction of 270°. Sectors D, E, F**		
4. **Determine Sectors that must be evacuated.**	**EVACUATE** **0-2 miles ALL** **2-5 miles Sectors D,E,F** **5-10 miles Sectors D,E,F**		
5. **Determines Sectors that must Go Indoors and monitor EAS/EBS.**	**The Operator determines the following GO INDOORS sectors:** **GO INDOORS** **2 - 5 miles All Remaining Sectors** **5-10 miles All Remaining Sectors**		
6. Turns in completed paperwork.	Returns completed Attachment 1 to evaluator**.**		

Stop Time: _____ **Total Time: _____**

ATTACHMENT 1 (Page 1 of 2)

Directions to Trainee:

When I tell you to begin, you are to determine Protective Action Recommendations for the provided conditions. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

During task performance, it is recommended that you limit your discussion/demonstration to the minimum required. The examiner may ask questions of you if necessary to understand your actions.

General Conditions:

1. A General Emergency (GE) has been declared under EAL AG1.1.
2. There IS a radioactive release in excess of ODAM limits at this time.
3. ERP release rate is 1.33E9 µCi/sec
4. A steam leak from HPCI is occurring.
5. CNS-DOSE is NOT available due to software error.
6. The core is degraded.
7. The stability class is “F”.
8. The wind is at 5 mph.
9. The wind is from 270°
10. There is NO precipitation
11 The below information has been determined a using hand calculation from EPIP 5.7.17

DOSE Projection Data				
Distance From Plant	Projected Integrated Dose (Rem)		Projected Dose Rate (Rem/hr)	
	TEDE	CDE (Thyroid)	TEDE	CDE (Thyroid)
Site Boundary	1.63E-05	4.39E-05	4.08E-6	1.10E-05
2 Miles	5.64E-02	1.52E-01	1.41E-02	3.80E-02
5 Miles	7.57E-01	2.04E-00	1.89E-01	5.10E-01
10 Miles	1.25E-00	2.69E-00	205E-01	6.73E-01

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Initiating Cue(s):

You are to determine the appropriate Protective Action Recommendations (PARs) for the provided conditions. Complete the PAR table and return it to the examiner when you have completed this task.

ATTACHMENT 1 (Page 2 of 2)

Protective Action Recommendations (PARS)			
	None	**Evacuate Sectors**	**Go indoors and monitor EAS/EBS in Sectors**
0-2 Miles			
2-5 Miles			
5-10 Miles			

REMARKS for 5.7.6 Attachment 3:

Task No.: 34401400303

Title: Medical Emergency (#1)

Trainee: _____ Examiner: _____

Pass ☐ Fail ☐ Examiner Signature: _____ Date: _____

Additional Program Information:

1. Appropriate Performance Locations: SIM / Classroom
2. Appropriate Trainee level: SRO / STE
3. Evaluation Method: Perform
4. Performance Time: 15 minutes
5. NRC K/A 2.4.38 (2.2/4.0);2.4.43 (2.8/3.5)

Directions to Examiner:

1. This JPM evaluates the trainee's ability to perform the required actions for an injured contaminated person who must be taken to the local hospital for treatment in accordance with Procedure 5.7.24, Medical Emergency.
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. Observe the trainee during performance of the JPM for proper use of self-checking methods.
4. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes/comments section below.
5. Brief the trainee and tell the trainee to begin.

Notes/Comments: _____

Task No.: 34401400303

Title: Medical Emergency (#1)

Directions to Trainee:

When I tell you to begin, you are to perform the required actions for an injured contaminated person who must be taken to the local hospital for treatment, in accordance with Procedure 5.7.24, Medical Emergency.

Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. A plant transient is in progress.
2. The Shift Manager is unavailable and has delegated you to handle this situation in his place.
3. The board operators are busy with the plant transient and are unavailable to support your evolution. You must personally perform any communications required for this situation.

General References:

1. Procedure 5.7.24, Medical Emergency

General Tools and Equipment:

1. None

Special Conditions, References, Tools, Equipment:

1. Critical checks denoted by bold steps.
2. Simulator cues denoted by "**#**".

Task Standards:

1. The Operator must perform the required actions for an injured contaminated person who must be taken to the local hospital for treatment, in accordance with Procedure 5.7.24, Medical Emergency.

2. 100% of critical elements successfully completed without error.
3. 100% of safety and radiological work practices.

Initiating Cue(s):

At 2:35 p.m. you are informed by a station operator that Bob Smith was working in the radwaste basement next to the spent resin storage tank when he fell from a scaffold. He is bleeding from the head and appears to have broken his left arm.

The Control Room Supervisor directs you to perform the required actions for an injured contaminated person who must be taken to the local hospital for treatment in accordance with Procedure 5.7.24, Medical Emergency.

Notify the SM when you have performed the required control room actions for this situation.

NOTE: Tell the trainee to begin.

Start Time: _____

Performance Checklist	Standards	Sat	Unsat
1. Obtain Procedure	The Operator obtained the current revision of Procedure 5.7.24, Medical Emergency Selected Attachment 2, Shift Manager.		
2. Alert the EMTs	**1.0 The Operator notified the EMTs and dispatched them to the medical emergency by one of the following methods:** **a. EMT pager group via the ANS phone; select EMT PAGE button followed by the Callback CR button. (primary method)** **b. EMT pager group (402) 633-0930; put in call-back phone number. (alternate method)** **c. Gaitronics announcement. (alternate method)** CUE: EMTs acknowledge the notification and are reporting to the location.		
3. Inform all EMTs of the emergency.	**2.0 Informed EMTs that an individual working in the Radwaste basement next to the spent resin storage tank has fallen from a scaffold, is bleeding and appears to have a broken left arm.** **CUE: Second EMT acknowledges the information and is in route to the scene.**		
4. Designate the third responding EMT to obtain keys to the ambulance.	**3.0 Directed the third EMT to obtain keys from Access Control if necessary, start the ambulance, and monitor Frequency 3 for directions.** **CUE: EMT states he will obtain the keys, start the ambulance and will await further instructions by monitoring Frequency 3.**		

Performance Checklist	Standards	Sat	Unsat
5. Dispatch the on-shift Chem/RP Technician to the scene.	**6.0 Directs the Chem/RP Technician to report to the scene with instrumentation suitable for frisking.** **CUE: Chem/RP technician reports he is at the scene already. The victim is contaminated and reads 200 mr/hr at six inches.**		
6. Dispatch the Incident Commander to the scene.	**7.0 Directs Incident Commander to report to the scene with a communication device.** **CUE: Fire Brigade Leader reports that he has arrived on the scene awaiting further instructions.**		
7. Makes Gaitronics announcement	**8.0 Made announcement similar to "Attention all station personnel, MEDICAL EMERGENCY, MEDICAL EMERGENCY, all personnel stay off Gaitronics unless emergency-related." Repeat.** **Evaluator Note: Do not have the person make the announcement if any person who also will be taking this JPM is within earshot. Have the person tell you what announcement he would make.**		
8. Notify the General Manager of Operations or Operations Manager.	9.0 Directed the General Manager of Operations or Operations manager to notify the victim's family. CUE: The Operations manager acknowledges the information and will make the necessary contact.		
9. Establish communication with the Incident Commander.	**10.0 Established communications by radio using Frequency 3 or by F2 on console with the Incident Commander.** **CUE: Incident Commander acknowledges via the radio that he hears you loud and clear.**		

Performance Checklist	Standards	Sat	Unsat
10. Determine if the victim will be transported as contaminated or non-contaminated.	**11.0 Asked the Incident Commander if the victim will be transported as contaminated or non-contaminated.** **CUE: As the Incident Commander state "The victim will be transported contaminated, he is bleeding from a large cut on his head and has a compound fracture of his left arm."**		
11. Coordinate with CNS ambulance to transport the victim.	**12.0 Directed the CNS ambulance crew to transport victim to the Nemaha County Hospital and verifies the ambulance crew has an EMT, Chem/RP, and driver available. (This is sub step 12.2.1)** **CUE: As the Incident Commander (FBL) state "An EMT as driver and the EMT and CHEM/RP personnel are at the ambulance and will be transporting the patient to the hospital."**		
12. Coordinate ambulance departure with station security	**12.3 Coordinates with Security and Verified ambulance has left CNS.** **CUE: Ambulance has left CNS.**		
13. Contact the Nemaha County Hospital.	**14.0 Contacts hospital and informs the Emergency Room Supervisor or Floor Supervisor of the victim's conditions (bleeding from head, compound fracture of left arm and contaminated). Gave the hospital an ETA.** **CUE: Hospital acknowledges receiving the communication and will be prepared to treat the victim upon arrival.**		

Performance Checklist	Standards	Sat	Unsat
14. Make Gaitronics announcement.	15.0 Makes Gaitronics announcement similar to "Attention all station personnel, the medical emergency is terminated, resume normal operations". Repeat. **Evaluator Note**: Do not have the person make the announcement if any person who also will be taking this JPM is within earshot. Have the person tell you what announcement he would make.		
15. Verify family notification.	16.0 Verify contact has been made with the victim's immediate family by the General Manager of Operations or Operations Manager. Note: When asked by the trainee if the victim's family has been notified provide the following: CUE: The Operations Manager has contacted the victim's family.		
16. Notifies the Shift Manager	The Operator informed the Shift Manager that all required control room actions for this situation.		

Stop Time: _____ **Total Time: _____**

ATTACHMENT 1

Directions to Trainee:

When I tell you to begin, you are to perform the required actions for an injured contaminated person who must be taken to the local hospital for treatment, in accordance with Procedure 5.7.24, Medical Emergency.

Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. A plant transient is in progress.
2. The Shift Manager is unavailable and has delegated you to handle this situation in his place.
3. The board operators are busy with the plant transient and are unavailable to support your evolution. You must personally perform any communications required for this situation.

Initiating Cue(s):

At 2:35 p.m. you are informed by a station operator that Bob Smith was working in the radwaste basement next to the spent resin storage tank when he fell from a scaffold. He is bleeding from the head and appears to have broken his left arm.

The Control Room Supervisor directs you to perform the required actions for an injured contaminated person who must be taken to the local hospital for treatment in accordance with Procedure 5.7.24, Medical Emergency.

Notify the SM when you have performed the required control room actions for this situation.

Task No.: None

Title: Placing SDG In Service From Control Room

Trainee: _____ Examiner: _____

Pass ☐ Fail ☐ Examiner Signature: _____ Date: _____

Additional Program Information:

1. Appropriate Performance Locations: CR / SIM
2. Appropriate Trainee level: RO / SRO
3. Evaluation Method: Simulate Perform
4. Performance Time: 20 minutes
5. NRC K/A 262001.K4.06 (3.6 / 3.9) and 264000.A4.04 (3.7/3.7)

Directions to Examiner:

1. This JPM evaluates the trainee's ability to start and place in service the Supplemental Diesel Generator from the Control Room in accordance with Procedure 2.2.99.
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. Observe the trainee during performance of the JPM for proper use of self-checking methods.
4. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes/comments section below.
5. Brief the trainee, place the simulator in run, and tell the trainee to begin.

Notes/Comments: _____

Task No.: None

Title: Placing SDG In Service From Control Room

Directions to Trainee:

When I tell you to begin, you are to place the Supplemental Diesel Generator in service from the Control Room. Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

If being simulated in the Control Room:

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. The Plant is Shutdown.
2. Critical 4160 Bus 1F is de-energized
3. Emergency Diesel Generator #1 is Inoperable and cannot be placed in service.
4. The Emergency Transformer is Unavailable.

General References:

1. Procedure 2.2.99 Supplemental Diesel Generator System

General Tools and Equipment:

1. None

Special Conditions, References, Tools, Equipment:

1. Simulator Setup: See Attachment 1.
2. Critical checks denoted by **bold steps.**
3. Simulator cues denoted by "#".

Task Standards:

1. The operator starts the Supplemental Diesel Generator and ties it to Critical Bus 1F and re-energizes the bus per Procedure 2.2.99.
2. 100% of critical elements successfully completed without error.
3. 100% of safety and radiological work practices.

Title: Placing SDG In Service From Control Room

Initiating Cue(s):

The Control Room Supervisor directs you to place the Supplemental Diesel Generator in service from the Control Room in accordance with Procedure 2.2.99 Supplemental Diesel Generator System and supply Critical Bus 1F.

Notify the CRS when the SDG is running and has energized the Bus.

NOTE: Ensure the Simulator is in RUN and tell the trainee to begin.

Title: Placing SDG In Service From Control Room

Start Time: _____

Performance Checklist	Standards	Sat	Unsat
1. Obtain Procedure	Obtained the current revision of Procedure 2.2.99 Supplemental Diesel Generator System. Selects Section 5.		
2. Place the SDG switch to Start	**5.1 Placed the SUPPLEMENTAL DIESEL GENERATOR control switch to START.**		
3. Close the SDG Output breaker	**5.2 Closed SDG OUTPUT BKR SG1 and check that the switch is red flagged.**		
4. Open Breaker 480S(12.5)	**5.3.1 On Switchgear Display Screen, the Operator transferred Bus 480S to the SDG by Opening Breaker 480S (12.5).**		
5. Close Breaker 480S(4160S)	**5.3.2 On Switchgear Display Screen, transferred Bus 480S to the SDG by Closing Breaker 480S (4160S).**		
Note to Examiner: The student will transfer to Section 8 to energize the 4160F Bus.			
6. Checks annunciators in section 8	Checked following Annunciators clear: 8.2.1 C-1/C-6, 4160V BUS 1F BKR 1FA 8.2.2 C-1/C-7, 4160V BUS 1F BKR 1FS 8.2.3 C-1/E-7, 4160V BUS 1F BKR 1FE LOCKOUTs.		

Performance Checklist	Standards	Sat	Unsat
7. Pulls to lock the pumps on 9-3.	**8.3 At Panel 9-3, placed the following switches to PULL-TO-LOCK:** • **RHR PUMP A.** • **CS PUMP A.** • **RHR PUMP B.**		
8. Pulls to lock the pumps on Panel A	**8.4 At Panel A, placed the following switches to PULL-TO-LOCK:** • **SERVICE WATER PUMP A.** • **SERVICE WATER PUMP C.**		
9. Pulls to lock the pumps on Panel C	**8.5 At Panel C, placed the following breaker switches to PULL-TO-LOCK:** • **BUS 1A TIE BKR 1FA.** • **EMERGENCY XFMR BKR 1FS.** • **DIESEL GEN 1 BKR EG1.** • **EMERGENCY XFMR BKR 1GS.**		
10. Places MODS Power to ON	**8.6.1 At SUPPLEMENTAL DIESEL GENERATOR PANEL placed the MODS POWER switch to ON.**		
11. Places XFMR MODS switch to Open	**8.6.2 Placed EMERGENCY XFMR MODS switch to OPEN.**		
12. Places SDG MODS switch to Close	**8.6.3 Placed SDG MODS switch to CLOSE.**		

Performance Checklist	Standards	Sat	Unsat
13. Places MOD POWER to OFF	**8.6.4 Placed MODS POWER switch to OFF.**		
14. Close Breaker 1SS	**8.6.5 Closed BUS 1S TIE BKR 1SS and check switch spring returns to NORMAL AFTER CLOSE (red flagged).**		
15. Closes Emergency XFRM BKR 1FS	**8.7 At Panel C; placed EMERGENCY XFMR BKR 1FS to CLOSE, then release and check switch spring returns to NORMAL AFTER CLOSE (red flagged).**		
16. Notifies the CRS	The Operator informed the CRS that the Supplemental Diesel Generator has been started and is aligned to the bus. **#CUE:** As the CRS, acknowledge the report.		

Stop Time: _____ **Total Time: _____**

ATTACHMENT 1

SIMULATOR SET-UP

A. Materials Required	None
B. Initialize the Simulator in IC	IC 1 (IC-240)
C. Run Batch File	
D. Change the simulator conditions as follows:	

1. Triggers

Number	File Name	Description

2. Malfunctions

Number	Title	Trigger	TD	Severity	Ramp	Initial
DG02A	Diesel Generator #1Trip	N/A	0	N/A	0	N/A
ED06	Loss of Emergency Transformer	N/A	0	N/A	0	N/A

3. Remotes

Number	Title	Trigger	TD	Value	Ramp
			0		N/A

4. Overrides

Instrument	Tag	Trigger	TD	Value	Ramp
None					

5. Panel Setup	Ensure Breaker 1FA is open.

Note: If this JPM is to be performed more than once, take a SNAPSHOT after the panel setup is complete.

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to place the Supplemental Diesel Generator in service from the Control Room. Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

If being simulated in the Control Room:

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. The Plant is Shutdown.
2. Critical 4160 Bus 1F is de-energized
3. Emergency Diesel Generator #1 is Inoperable and cannot be placed in service.
4. The Emergency Transformer is Unavailable.

Initiating Cue(s):

The Control Room Supervisor directs you to place the Supplemental Diesel Generator in service from the Control Room in accordance with Procedure 2.2.99 Supplemental Diesel Generator System and supply Critical Bus 1F.

Notify the CRS when the SDG is running and has energized the Bus.

Task No: 259042P0101

SHIFTING FROM SINGLE ELEMENT TO AUTO (3 ELEMENT) CONTROL (Alternate Path) #1

Trainee: _____ Examiner: _____

Pass ☐ Fail ☐ Examiner Signature: _____ Date: _____

THIS IS AN ALTERNATE PATH JPM

Additional Program Information:

1. Appropriate Performance Locations: CR / SIM
2. Appropriate Trainee level: RO / SRO
3. Evaluation Method: __ Simulate __ Perform
4. Performance Time: 15 minutes
5. NRC K/A 259002 A4.06 (3.1/3.2)

Directions to Examiner:

Note: This JPM is an Alternate Path JPM. This JPM requires restoring 3 steam flow signals to RVLC.

1. This JPM evaluates the trainee's ability to SHIFT FROM SINGLE ELEMENT TO AUTO (3 ELEMENT) CONTROL in accordance with Procedure 4.4.1, Reactor Level Control System. (Alternate Path)
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. Observe the trainee during performance of the JPM for proper use of self-checking methods.
4. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes comments section below.
5. Brief the trainee, place the simulator in run, and tell the trainee to begin.

Notes/Comments: _____

Task No: 259042P0101

SHIFTING FROM SINGLE ELEMENT TO AUTO (3 ELEMENT) CONTROL (Alternate Path) #1

Directions to Trainee:

When I tell you to begin, you are to SHIFT FROM SINGLE ELEMENT TO AUTO (3 ELEMENT) CONTROL on the RVLC System. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

If being simulated In-Plant or Control Room:

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. The plant is stable at 100% Power.
2. Single Element Control due to RVLC Maintenance that is complete.

General References:

1. Procedure 4.4.1 Reactor Vessel Level Control System, Rev. 06

General Tools and Equipment:

1. None

Special Conditions, References, Tools, Equipment:

1. Simulator Setup: See Attachment 1.
2. Critical checks denoted by **BOLD** text.
3. Simulator cues denoted by "**#**".
4. Alternate path denoted by♦.

Task Standards:

1. The operator shifts Reactor Water Level Control from one element to three element control per procedure 4.4.1, Reactor Water Level Control System.
2. 100% of critical elements successfully completed without error.
3. 100% of safety and radiological work practices.

Initiating Cue(s):

The CRS Orders you to SHIFT RVLC FROM SINGLE ELEMENT TO AUTO (3 ELEMENT)

Task No: 259042P0101

SHIFTING FROM SINGLE ELEMENT TO AUTO (3 ELEMENT) CONTROL (Alternate Path) #1

CONTROL per procedure 4.4.1, Reactor Vessel Level Control System.

Notify the CRS when Reactor Water Level Control is in three element control.

NOTE: Ensure the Simulator is in RUN and tell the trainee to begin.

Task No: 259042P0101

SHIFTING FROM SINGLE ELEMENT TO AUTO (3 ELEMENT) CONTROL (Alternate Path) #1

Start Time: _____

Performance Checklist	Standards	SAT	UNSAT
1. Select RVLC system	**12.1 At RVLC/RFPT HMI, selected RVLC system.** #CUE: RVLC Selected		
2. Select CONTROL screen	12.2 Select CONTROL screen and verify on Master Controller that the PERMISSIVE ball is yellow. #CUE: The PERMISSIVE ball is NOT yellow.		
3. ♦Check Conditions	**12.3 If PERMISSIVE ball is not YELLOW, ensured the following conditions are met:** **12.3.1 Master Level Controller is in AUTO.** **12.3.2 Wide range FW flow transmitter is valid when associated RFP is in AUTO**. **12.3.3 At least two steam flow elements are valid.** **12.3.4 Turbine 1st stage flow is valid if less than four steam flow elements are valid** **12.3.5 At least one individual RFP controller is in AUTO** **12.3.6 Total steam flow greater than 1 Mlbm.** **12.3.7 At least one Reactor Vessel Level indicator is valid.** #CUE: Three steam flow elements are invalid		
4. ♦Contact System Engineer or CRS	**12.4 If PERMISSIVE ball is still not YELLOW, contacted System Engineer.**		

Task No: 259042P0101

SHIFTING FROM SINGLE ELEMENT TO AUTO (3 ELEMENT) CONTROL (Alternate Path) #1

Performance Checklist	Standards	SAT	UNSAT
	#CUE: System Engineer says to restore all Bypassed Steam flows.		
5. Restoring Input	**Referred to section 9 Restoring RVLC Input To Service**		
6. Select RVLC system	**9.1 At a RVLC/RFPT HMI, selected RVLC system** #CUE: RVLC system selected		
7. Select MIMIC screen	**9.2 Selected MIMIC screen and verified affected parameters are ready to be returned to service** #CUE: All four Steam flows are reading ~ the same		
8. Select MAINT Screen	**9.3 Selected MAINT screen** #CUE: MAINT screen selected.		
9. **Select Steam Flow parameter**.	**9.4 On MAINT. screen, selected desired parameter** #CUE: One Steam flow selected		
10. **Press RESET button**.	**9.5 On pop-up menu, pressed RESET button** #CUE: Reset button depressed		
11. Verify affected parameter tile green	**9.6 Verified steam flow parameter tile turned green.** #CUE: Selected steam flow parameter turned GREEN.		
12. Repeat Steps 8 and 9	**Repeats Steps 9 and 10 for the other 2 Steam Flows**		

Task No: 259042P0101

SHIFTING FROM SINGLE ELEMENT TO AUTO (3 ELEMENT) CONTROL (Alternate Path) #1

Performance Checklist	Standards	SAT	UNSAT
for the other 2 Steam Flows	#CUE: The Other two Steam flows are reset		
13. Returns to section 12 of procedure	Returned to section 12.5 of procedure to complete actions.		
14. Check RFC-SW-S2 Position	**12.5 Placed RFC-SW-S2, 1 OR AUTO ELEMENT LEVEL CONTROL SWITCH is in "1" position (Panel 9-5).** #CUE: In “1” position		
15. Place RFC-SW-S2 in Auto.	**12.6 Placed RFC-SW-S2, 1 OR AUTO ELEMENT LEVEL CONTROL SWITCH to AUTO position.** #CUE: In Auto Position		
16. Check Control Screen	12.7 At CONTROL screen, verified THREE ELEMENT ball is yellow #CUE: THREE ELEMENT ball is yellow		
17. Informs CRS	Informed CRS The RVLC system is in AUTO (3 ELEMENT) CONTROL.		

Stop Time: _____ **Total Time: _____**

Task No: 259042P0101

SHIFTING FROM SINGLE ELEMENT TO AUTO (3 ELEMENT) CONTROL (Alternate Path) #1

ATTACHMENT 1

SIMULATOR SET-UP

A. Materials Required		None					
B. Initialize the Simulator in IC		IC-234					
C. Run Batch File		None					
D. Change the simulator conditions as follows:	Number	Title	TRG	TD	Sev	Ramp	Initial
1. Triggers	None						
2. Malfunctions	None	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A					
3. Remotes	None						
	N/A	N/A					
4. Overrides	None						
	N/A	N/A					
5. Panel Setup	Place simulator in Run and Bypass 3 of 4 Steam Flows from the Maintenance Screen						
Note: If this JPM is to be performed more than once, take a SNAPSHOT after the panel setup is complete.							

Task No.: 259042P0101

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to SHIFT FROM SINGLE ELEMENT TO AUTO (3 ELEMENT) CONTROL on the RVLC System. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

If being simulated In-Plant or Control Room:

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. The plant is stable at 100% Power.
2. Single Element Control due to RVLC Maintenance that is complete.

Initiating Cue(s):

The CRS Orders you to SHIFT RVLC FROM SINGLE ELEMENT TO AUTO (3 ELEMENT) CONTROL per procedure 4.4.1, Reactor Vessel Level Control System.

Notify the CRS when Reactor Water Level Control is in three element control.

Task No. 200182A0501:

Recover From Manual Scoop Tube Operations

Trainee: _____ Examiner: _____

Pass ☐ Fail ☐ Examiner Signature: _____ Date: _____

Additional Program Information:

1. Appropriate Performance Locations: CR / SIM
2. Appropriate Trainee level: RO / SRO
3. Evaluation Method: __ Simulate __ Perform
4. Performance Time: 10 minutes
5. NRC K/A A.0

Directions to Examiner:

1. This JPM evaluates the trainee's ability to recover from manual scoop tube operations in accordance with 2.2.68.1, Reactor Recirculation System.
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. Observe the trainee during performance of the JPM for proper use of self-checking methods.
4. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes/comments section below.
5. Brief the trainee, place the simulator in run, and tell the trainee to begin.

Notes/Comments: _____

_____

_____

_____

_____

_____

_____

_____

_____

Task No. 200182A0501:

Recover From Manual Scoop Tube Operations

Directions to Trainee:

When I tell you to begin, you are to RESET the SCOOP TUBE LOCKOUT in accordance with 2.2.68.1, Reactor Recirculation System Operations from the Control Room. Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

If being simulated in the Control Room:

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. The plant is operating at 100% power.
2. The “A” Reactor Recirc Pump had been being controlled locally
3. All repairs are completed and the Scoop Tube is available.

General References:

1. Procedure 2.2.68.1, Rev. 74, Reactor Recirculation System Operations

General Tools and Equipment:

1. None

Special Conditions, References, Tools, Equipment:

1. Simulator Setup: See Attachment 1.
2. Critical checks denoted by **BOLD** text.
3. Simulator cues denoted by "#".

Task No. 200182A0501:

Recover From Manual Scoop Tube Operations

Task Standards:

1. The operator resets the SCOOP TUBE LOCKOUT in accordance with 2.2.68.1, Reactor Recirculation System Operations from the control room per procedure.
2. 100% of critical elements successfully completed without error.
2. 100% of safety and radiological work practices.

Initiating Cue(s):

The Control Room Supervisor directs you to recover from manual scoop tube operations on the “A” Reactor Recirc Pump controller and match it to within 5 % of the speed of the “B” Reactor Recirculation Pump. Inform the CRS when the MG Set control has been restored and matched to the “B” Reactor Recirculation Pump.

Task No. 200182A0501:

Recover From Manual Scoop Tube Operations

Performance Checklist	Standards	SAT	UNSAT
1. Obtain procedure 2.2.68.1 Section 17.	The Operator obtained a copy of procedure 2.2.68.1 Section 17.	_____	_____
2. Ensures "S" is selected.	**16.1 The Operator selected Parameter "S" on RRFC-SIC-16A.** #Cue: "S" is displayed in the window.	_____	_____
3. Adjust "S" to make "S" and "L" lights are off.	**16.2 The Operator adjusted RRFC-SIC-16A manual control knob (Parameter S), as necessary, until "S" and "L" lights are off.** #Cue: Both "S" and "L" lights are off.	_____	_____
4. Verify Parameter V value is within 2.0 of Parameter P.	16.3 The Operator verified that Parameter V and P are within 2.0 of each other, by selecting each parameter one at a time. #Cue: The values are within 2.0 of each other.	_____	_____
5. Press Scoop Tube Lock Reset.	**16.4 The Operator pressed RRMG Set A Scoop Tube Lockout Reset button.** **#Cue:** The lockout light and alarms clear.	_____	_____
6. Adjusts speed to within 5% of "A" RR Pmp.	16.5 The Operator rotated the manual control knob counterclockwise and lowers speed on the "A" RR Pump. #Cue: Speed is lowering, and is down within 5% of "B" RR Pmp.	_____	_____

Task No. 200182A0501:

Recover From Manual Scoop Tube Operations

Performance Checklist	Standards	SAT	UNSAT
7. Notifies the CRS.	The Operator notified the CRS that the "B" RR Pump Scoop Tube Lockout has been reset and matched "A" and "B" Recirculation Pump Speeds. Cue: Respond as the CRS.	_____	_____

Task No. 200182A0501:

Recover From Manual Scoop Tube Operations

ATTACHMENT 1

SIMULATOR SET-UP

A. Materials Required		None					
B. Initialize the Simulator in IC		IC-234					
C. Run Batch File		None					
D. Change the simulator conditions as follows:	Number	Title	Tgr	TD	Sev	Ramp	Initial
1. Triggers	None						
2. Malfunctions	RR17A	Recirc Pump A Runback	1	0	78	0	84
	N/A	N/A					
3. Remotes	None						
	N/A	N/A					
4. Overrides	None						
	N/A	N/A					
5. Panel Setup	a. Place the simulator to RUN. b. Insert “A” RR MG Set Runback (Trg 1) c. Lock out the “A” RR MG Set at 78%. d. Rotate the controller for the RR Pump a few rotations to ensure a mismatch between parameters.						
Note: If this JPM is to be performed more than once, take a SNAPSHOT after the panel setup is complete.							

Task No.: 200182A0501

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to RESET the SCOOP TUBE LOCKOUT in accordance with 2.2.68.1, Reactor Recirculation System Operations from the Control Room. Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

If being simulated in the Control Room:

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. The plant is operating at 100% power.
2. The “A” Reactor Recirc Pump had been being controlled locally
3. All repairs are completed and the Scoop Tube is available.

The Control Room Supervisor directs you to recover from manual scoop tube operations on the “A” Reactor Recirc Pump controller and match it to within 5 % of the speed of the “B” Reactor Recirculation Pump. Inform the CRS when the MG Set control has been restored and matched to the “B” Reactor Recirculation Pump.

Task No.: 262072P0101

Title: Transfer RPSPP1B from RPS MG Set B to CDP-1A

FerTrainee: _____ Examiner: _____

Pass ☐ Fail ☐ Examiner Signature: _____ Date: _____

Additional Program Information:

1. Appropriate Performance Locations: CR / SIM
2. Appropriate Trainee level: RO / SRO
3. Evaluation Method: Simulate Perform
4. Performance Time: 20 minutes
5. NRC K/A 212000 A1.11 (3.4 / 3.3) and 212000.A2.02 (3.7/3.9)

Directions to Examiner:

1. This JPM evaluates the trainee's ability to Transfer RPSPP1B from RPS MG Set B to CDP-1A in accordance with Procedure 2.2.22, Vital Instrument Power System.
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. Observe the trainee during performance of the JPM for proper use of self-checking methods.
4. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes/comments section below.
5. Brief the trainee, place the simulator in run, and tell the trainee to begin.

Notes/Comments: _____

Title: Transfer RPSPP1B from RPS MG Set B to CDP-1A

Directions to Trainee:

When I tell you to begin, you are to Transfer RPSPP1B from RPS MG Set B to CDP-1A in accordance with Procedure 2.2.22, Vital Instrument Power System. Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

If being simulated in the Control Room:

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. The Plant is operating at 100% steady state power.
2. RPS MG Set “B” has an acrid odor around it and could fail at any time.
3. RWCU has been removed from service

General References:

1. Procedure 2.2.22, Vital Instrument Power System, Rev. 70

General Tools and Equipment:

1. None

Special Conditions, References, Tools, Equipment:

1. Simulator Setup: See Attachment 1.
2. Critical checks denoted by **bold steps.**
3. Simulator cues denoted by "#".

Title: Transfer RPSPP1B from RPS MG Set B to CDP-1A

Task Standards:

1. The operator is to Transfer RPSPP1B from RPS MG Set B to CDP-1A in accordance with Procedure 2.2.22, Vital Instrument Power System.
2. 100% of critical elements successfully completed without error.
3. 100% of safety and radiological work practices.

Initiating Cue(s):

The Control Room Supervisor directs you to Transfer RPSPP1B from RPS MG Set B to CDP-1A in accordance with Procedure 2.2.22, Vital Instrument Power System.

Notify the CRS when RPSPP1B has been transferred from RPS MG Set B to CDP-1A in accordance with Procedure 2.2.22, Vital Instrument Power System

NOTE: Ensure the Simulator is in RUN and tell the trainee to begin.

Title: Transfer RPSPP1B from RPS MG Set B to CDP-1A

Start Time: _____

Performance Checklist	Standards	Sat	Unsat
1. Obtain Procedure.	The Operator obtained the current revision of Procedure 2.2.22, Vital Instrument Power System. Selected Section 7.		
2. Determines the task begins at step 7.6.	7.6 Operator determined that step 7.6 is the beginning step for this task.		
3. Determine alt power source is available.	7.6.1 At Panel 9-16 (Control Room), checked white ALT SOURCE AVAIL light above RPS BUS B POWER TRANSFER switch is on CUE: The white light is on.		
4. Ensure step 7.3 is N/A.	7.6.1 Operator determined that this step is not applicable due to white light being lit.		
5. Verify MSIV DC Solenoids are energized.	7.6.2 In Panel 9-42 (Auxiliary Relay Room), for each open MSIV, checked MSIV DC solenoid ammeters are in green band. #CUE: All solenoids are in green band.		
6. Step 7.6.3 is N/A.	Operator determined that this step is not applicable due to RWCU being removed from service. (initial conditions)		

Title: Transfer RPSPP1B from RPS MG Set B to CDP-1A

Performance Checklist	Standards	Sat	Unsat
7. Secure Rx. Bldg. Ventilation.	7.6.4 Operator Obtained procedure 2.2.47 to secure Reactor Building Ventilation.		
8. Determines appropriate section of 2.2.47 to perform.	Operator selected Section 9 of 2.2.47 to remove Reactor Building Ventilation from service.		
9. N/A steps not required.	9.1 Operator determined Steps 9.1, 9.2, are not required due to RWCU being removed from service.		
10. Notify RP Dept.	9.3 Operator notified the RP Dept. that ventilation was being secured. CUE: RP acknowledges Rx Bldg. Ventilation is being secured and will perform necessary controls.		
11. Notify Safety Dept.	9.4 Operator notified the Safety Dept. that ventilation was being secured. CUE: Safety representative acknowledges Rx Bldg. Ventilation is being secured and will perform necessary monitoring and controls.		
12. Secure Exhaust Fume Hoods.	9.5 – 9.7 Operator dispatched an operator to secure local Hood Exhaust Fans HF-R-1A, HF-R-1B, and HF-R-1C. CUE: Operator has been dispatched and secured the local Hood Exhaust Fans.		

Title: Transfer RPSPP1B from RPS MG Set B to CDP-1A

Performance Checklist	Standards	Sat	Unsat
13. Secure One Rx. Building Exhaust Fan.	9.8 Operator Secured one Reactor Building Exhaust Fan by the following: 9.8.1. Ensure controller in MANUAL and controller in AUTOMATIC 9.8.2. Established communications and FCV room. 9.8.3. Placed control switch to RUN for Supply fan selected to AUTO 9.8.4. Placed control switch to RUN for SUPPLY FAN EF-R-1A 9.8.5. Placed control switch to RUN for SUPPLY FAN EF-R-1B 9.8.6. Placed control switch to RUN for EXH BSTR FAN selected to AUTO. 9.8.7. Adjusted controller in AUTOMATIC to -0.4 and allow pressure to stabilize. 9.8.8. Adjusted HV-FCV-1013 flowrate to 30K – 50K, with output of 10 - 80%, maintaining 0.30” to -0.33” wg. 9.8.9 When controller reaches 10%, Stopped selected EXHAUST FAN by placing control switch to OFF. CUE: Exhaust Fan secured.		
14. Place non-running fan to standby.	9.8.10 Operator placed the control switch for the non-running EXHAUST FAN to STBY. CUE: Non-running Exhaust Fan in STBY.		
15. Adjust setpoint.	9.8.11 Operator adjusted setpoint of controller in AUTOMATIC to -.30” to -0.43” wg and allows building pressure to stabilize. CUE: Building pressure has stabilized.		
16. Ensure Building pressure is maintained.	9.8.12 Operator ensured Reactor Building Pressure is being maintained at -.30” to -0.43” wg. CUE: Building pressure is -0.35" wg.		

Title: Transfer RPSPP1B from RPS MG Set B to CDP-1A

Performance Checklist	Standards	Sat	Unsat
17. Ensures controller Man / Auto setpoints balanced.	9.8.13 Ensured output signal (V value) for controller selected to MANUAL matches output of controller in AUTOMATIC CUE: Output signals match.		
18. Supply Fan to AUTO.	9.8.14 Placed control switch for running SUPPLY FAN to AUTO. CUE: Control switch is in AUTO.		
19. Exhaust Fan to AUTO.	9.8.15 Placed control switch for running EXHAUST FAN to AUTO. CUE: Control switch is in AUTO.		
20. Exhaust Booster Fan to Auto.	9.8.16 Placed control switch for running EXH BSTR FAN to AUTO CUE: Control switch is in AUTO.		
21. Start SGTS per procedure 2.2.73.	9.9 Start SGT System per Procedure 2.2.73 to maintain Reactor Building pressure negative.		
22. Selects section 6.0 to start SGTS.	Operator selected Section 6 to start SGTS		
23. Select control setting.	6.1 At VBD-R, placed SGT-DPIC-546, RX BLDG/SGT DP, in AUTO with setpoint adjusted to maintain $\leq$ -0.25" wg. CUE: SGT-DPIC-546 is in AUTO and setpoint is adjusted.		

Title: Transfer RPSPP1B from RPS MG Set B to CDP-1A

Performance Checklist	Standards	Sat	Unsat
24. Places SGT train in service.	**6.2 At VBD-K, placed SGT in service:** **6.2.1 SGT A** **a. Started EF-R-1E, SGT A EXHAUST FAN** **b. Check SGT-AO-249, SGT A INLET, opens** **c. Check SGT-AO-251, SGT A DISCHARGE, opens** **OR** **6.2.2 SGT B** **a. Started EF-R-1F, SGT B EXHAUST FAN** **b. Check SGT-AO-250, SGT A INLET, opens** **c. Check SGT-AO-252, SGT A DISCHARGE, opens** **Adjusted SGT-DPIC-546, RX BLDG/SGT DP, as necessary, to obtain ≥ 800 scfm on SGT-FI-545, SGT DISCHARGE HEADER FLOW and maintained at ≤ -0.25" wg.** **CUE: Flow is ≥ 800 scfm and Reactor Building pressure is -0.25" wg.**		
25. Continue in 2.2.47 to secure Rx. Bldg. Ventilation.	9.10 Placed control switches for the following fans to OFF in order listed: a. EXHAUST FAN selected to STBY, EF-R-1A or EF-R-1B b. EXH BSTR FAN selected to STBY, BF-R-1A or BF-R-1B c. SUPPLY FAN selected to STBY, SF-R-1A-A or SF-R-1A-B CUE: Fans are OFF		

Title: Transfer RPSPP1B from RPS MG Set B to CDP-1A

Performance Checklist	Standards	Sat	Unsat
26. Secure Rx Bldg Fans.	9.11Perform the following in rapid succession: a. Place control switch for operating EXH BSTR FAN to OFF b. B. Place control switch for operating SUPPLY FAN to OFF c. C. Place control switch for operating EXHAUST FAN to OFF d. Close AO-257, HV-R-1A DISCH VLV e. Close AO-259, EXH FANS DISCH VLV f. Close AO-261, EXH FANS DISCH VLV CUE: Fans are OFF and valves are CLOSED.		
27. Close Secondary Containment Isolation Valves.	9.12 Closed the following Secondary Containment Isolation Valves: a. MO-272, HV-R-1A DISCH VLV b. MO-258, EXH FANS DISCH VLV c. MO-260, EXH FANS DISCH VLV CUE: Valves are CLOSED		
28. Inform CRS Reactor Kaman may be secured.	9.13 Informed CRS that Reactor Building Kaman may be removed from service per Procedure 4.15.4, if desired CUE: CRS acknowledges and replies that it will remain in service.		
29. Step 9.14 N/A.	9.14 Operator recognized that unit will not be secured for greater than 24 hours and informs CRS that step may be N/A. CUE: CRS acknowledges and agrees that step is N/A.		

Title: Transfer RPSPP1B from RPS MG Set B to CDP-1A

Performance Checklist	Standards	Sat	Unsat
30. Prevent AOG from Isolating.	7.6.5.1 Operator notifies SM that RHR-MO-921 will be inoperable. CUE: SM acknowledges RHR-MO-921 will be INOP. 7.6.5.2 At Panel BB3, open breaker 7 for RHR-MO-921. CUE: Another operator will open breaker 7 at BB3, and the action is complete.		
31. Notify SM of systems INOP due to group isolations.	7.6.6. Operator notified SM that Drywell Vent Monitor and Reactor water conductivity monitoring will be INOP due to group isolations. CUE: SM acknowledges Drywell Vent Monitor and Rx. Water conductivity monitoring are INOP.		
32. Step 7.6.7 is N/A.	7.6.7 Operator determined that this step is not applicable due to RWCU being removed from service. (initial conditions) #CUE: RWCU has been removed from service.		
33. Station Operator at RPS MG Set B Room.	7.6.8 Operator requested another operator be stationed at the RPS MG Set B Room, to perform step 7.6.9.3. CUE: Another operator is stationed at the RPS MG Set B Room.		
34. Transfer power to alternate source.	**7.6.9 At panel 9-16, Operator placed RPS BUS B POWER TRANSFER switch to ALT FEED, and verified:** 7.6.9.1 Checked Red ALT SOURCE ON light is on. 7.9.6.2 Checked Red GEN B ON light is off 7.6.9.3 Checked with operator at RPS MG SET ROOM B that Red LOAD CONNECTED TO EMERGENCY light is on, and Red LOAD CONNECTED TO NORMAL light is off. **CUE: Red LOAD CONNECTED TO EMERGENCY light is on, and Red LOAD CONNECTED TO NORMAL light is off**		

Performance Checklist	Standards	Sat	Unsat
35. Release Transfer Switch.	Operator released RPS BUS B POWER TRANSFER switch.		
36. Notifies the CRS.	The Operator informed the CRS that the RPSPP1B has been transferred from RPS MG Set B to CDP-1A in accordance with Procedure 2.2.22, Vital Instrument Power System. #CUE: Respond as CRS.		

Stop Time: _____ **Total Time: _____**

ATTACHMENT 1

SIMULATOR SET-UP

A. Materials Required	None
B. Initialize the Simulator in IC	IC 234
C. Run Batch File	
D. Change the simulator conditions as follows:	

1. Triggers

Number	File Name	Description

2. Malfunctions

Number	Title	Trigger	TD	Severity	Ramp	Initial
None		N/A	0	N/A	0	N/A

3. Remotes

Number	Title	Trigger	TD	Value	Ramp
None			0		N/A

4. Overrides

Instrument	Tag	Trigger	TD	Value	Ramp
None					

5. Panel Setup	1. Place simulator in RUN. 2. Remove RWCU from service

Note: If this JPM is to be performed more than once, take a SNAPSHOT after the panel setup is complete.

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to Transfer RPSPP1B from RPS MG Set B to CDP-1A in accordance with Procedure 2.2.22, Vital Instrument Power System. Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

If being simulated in the Control Room:

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. The Plant is operating at 100% steady state power.
2. RPS MG Set “B” has an acrid odor around it and could fail at any time.
3. RWCU has been removed from service

Initiating Cue(s):

The Control Room Supervisor directs you to Transfer RPSPP1B from RPS MG Set B to CDP-1A in accordance with Procedure 2.2.22, Vital Instrument Power System.

Notify the CRS when RPSPP1B has been transferred from RPS MG Set B to CDP-1A in accordance with Procedure 2.2.22, Vital Instrument Power System.

Task No.: 200185A0501

Title: RPV Depressurization with RWCU (Alternate Path)

Trainee: _____ Examiner: _____

Pass ☐ Fail ☐ Examiner Signature: _____ Date: _____

ALTERNATE PATH

Additional Program Information:

1. Appropriate Performance Locations: CR / SIM
2. Appropriate Trainee level: RO / SRO
3. Evaluation Method: Simulate Perform
4. Performance Time: 20 minutes
5. NRC K/A 204000 A4.03 (3.2 / 316) and 204000 A1.04 (2.8/2.8)

Directions to Examiner:

Note: This JPM is an Alternate Path JPM. The valve will not operate when aligning blowdown to the condenser and blowdown to Radwaste must be used.

1. This JPM evaluates the trainee's ability to perform RPV Depressurization with RWCU from the Control Room in accordance with Procedure 5.8.2.
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. Observe the trainee during performance of the JPM for proper use of self-checking methods.
4. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes/comments section below.
5. Brief the trainee, place the simulator in run, and tell the trainee to begin.

Notes/Comments: _____

Title: RPV Depressurization with RWCU (Alternate Path)

Directions to Trainee:

When I tell you to begin, you are to perform RPV Depressurization with RWCU from the Control Room in accordance with Procedure 5.8.2. RPV Depressurization Systems (Table 2) from the Control Room. Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

If being simulated in the Control Room:

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. The Plant has scrammed.
2. EOPs have been entered.
3. Reactor Depressurization is required per the EOPs.

General References:

Procedure RPV Depressurization with RWCU from the Control Room in accordance with Procedure 5.8.2., RPV Depressurization Systems (Table 2).

General Tools and Equipment:

1. None

Special Conditions, References, Tools, Equipment:

1. Simulator Setup: See Attachment 1.
2. Critical checks denoted by **bold text.**
3. Simulator cues denoted by "**#**".
4. Alternate path denoted by♦.

Task Standards:

1. The operator performs RPV depressurization with RWCU by attempting to blow down to the main condenser and transition to blowing down to Radwaste in accordance with

Procedure 5.8.2., RPV Depressurization Systems (Table 2) from the control room.
2. 100% of critical elements successfully completed without error.
3. 100% of safety and radiological work practices.

Initiating Cue(s):

The Control Room Supervisor directs you to depressurize the RPV with RWCU from the control room in accordance with procedure 5.8.2, RPV Depressurization Systems (Table 2). Preferred discharge path is to the Main Condenser.

Notify the CRS when you are depressurizing the RPV with RWCU.

NOTE: Ensure the Simulator is in RUN and tell the trainee to begin.

Title: RPV Depressurization with RWCU (Alternate Path)

Start Time: _____

Performance Checklist	Standards	Sat	Unsat
1. Obtain Procedure	The Operator obtained the current revision of Procedure 5.8.2, RPV Depressurization Systems. Selected Section 15.		
2. Refer to Section 3 for dispatching personnel	15.1 Operator referred to Section 3 for dispatching personnel when actions outside the Control are required.		
3. N/A Steps	15.2 Operator determined that Step 15.2 can be N/A'd since it is not required by plant conditions. CUE: If Operator chooses to install PTMs, respond that another operator will install the PTMs and they are complete.		
4. Verify Group 3 Isolation	15.3 Operator verified Group 3 Isolation was present per procedure 2.1.22. (Hard Card) CUE: Group 3 Channel A and B lights are out on Panel 9-5. RWCU-MO-15, INBD ISOL VLV indicates CLOSED on Panel 9-4. RWCU-MO-18, OUTBD ISOL VLV indicates CLOSED on Panel 9-4.		

Title: RPV Depressurization with RWCU (Alternate Path)

Performance Checklist	Standards	Sat	Unsat
5. Reset Group 3 Isolation Signal	**15.3.1-3 Operator reset Group 3 Isolation signal by** **a. turning GROUP ISOL RESET CHANNEL A and CHANNEL B, switches to the right RESET position and then releasing to NOR at panel 9-5.** **b. Opened RWCU-MO-15, INBD ISOL VLV, at panel 9-4,and** **c. Opened RWCU-MO-18, OTBD ISOL VLV, at panel 9-4.** CUE: Group 3 Channel A and B lights are ON at Panel 9-5. RWCU-MO-15, INBD ISOL VLV, indicates OPEN at panel 9-4. RWCU-MO-18, OTBD ISOL VLV, indicates OPEN at panel 9-4.		
6. Stop Running RWCU Pump	15.4 Placed running RWCU PUMP switch to STOP, if running. CUE: RWCU pumps are not running.		
7. Closes return to RPV	**15.5 Closed RWCU-MO-68, RETURN LINE TO RX VLV.** CUE: RWCU-MO-68 is CLOSED.		

Title: RPV Depressurization with RWCU (Alternate Path)

Performance Checklist	Standards	Sat	Unsat
8. Verify RWCU F/Ds in Hold A or B or both divisions?? Is it on the setup page if preferred train?	15.6 Verified RWCU F/Ds are in hold by having operator at local F/D panel 12-4-98A/B place the F/D in Hold. #CUE As local operator acknowledge the direction to place F/Ds in Hold until the action is complete.If asked, steps 15.6.1.1 thru 15.6.1.4 are complete (A division). What about B division steps 15.6.2.1 thru 15.6.2.4?		
9. Verify Flowpath	**15.7 Operator ensured the following:** **a. RWCU-RMC-143, BD VLV 55 FLOW CONTROL, was adjusted to zero.** **b. RWCU-MO-74, DEMIN SUCTION BYPASS VLV, was open.** **c. RWCU-MO-53, BLOWDOWN ORIFICE BYPASS VLV was open.** CUE: a. RWCU-RMC-143, BD VLV 55 FLOW CONTROL, is set to zero. b. RWCU-MO-74, DEMIN SUCTION BYPASS VLV, is open. c. RWCU-MO-53, BLOWDOWN ORIFICE BYPASS VLV is open.		
10. ♦Align Blowdown Flowpath to Main Condenser	15.8 Operator aligned blowdown to the Main Condenser by opening RWCU-MO-56. CUE: RWCU-MO-56 will NOT OPEN.		
Note to Examiner: Operator may choose to continue and redirect blowdown to Radwaste without CRS approval but will inform CRS afterward.			

Title: RPV Depressurization with RWCU (Alternate Path)

Performance Checklist	Standards	Sat	Unsat
11. Report failure of MO-56 to open.	Operator reports failure of MO-56 to open to the CRS. CUE: CRS acknowledges. #CUE: If asked what to do, the examiner should ask the applicant what he/she recommends. The operator should recommend to blowdown to Radwaste. If the applicant doesn't have a recommendation, the examiner should role play as the CRS and inform the applicant that we need to blowdown.		
12. ♦Align Blowdown Flowpath to Radwaste	**15.8 Operator aligns blowdown to Radwaste by opening RWCU-MO-57.** **CUE: RWCU-MO-57 is OPEN.**		
13. Start RWCU Pump	**15.9 Placed and held RWCU Pump A(B) switch to START at panel 9-4.** CUE: RWCU pump is running.		
14. Set Blow down Flow rate	**15.12 Throttled RWCU-FCV-55, BLOWDOWN FLOW CONTROL VLV, using RWCU-RMC-143, BD VLV 55 FLOW CONTROL to achieve desired cooldown rate and did <u>not</u> exceed 70 GPM, and maintain >200 psig above RPV pressure by throttling RWCU-MO-68, RETURN LINE TO RX VLV.** CUE: Pressure on RWCU-PI-131 indicates approximately 220 psi above reactor pressure. Blowdown flow is less than70 gpm.		

Title: RPV Depressurization with RWCU (Alternate Path)

Performance Checklist	Standards	Sat	Unsat
15. Notifies the CRS	15.13 Inform CRS that RWCU is being utilized to depressurize the RPV.		

Stop Time: _____ **Total Time: _____**

ATTACHMENT 1

SIMULATOR SET-UP

A. Materials Required	None
B. Initialize the Simulator in IC	IC-235
C. Run Batch File	None

D. Change the simulator conditions as follows:

1. Triggers

Number	File Name	Description

2. Malfunctions

Number	Title	Trigger	TD	Severity	Ramp	Initial
None		N/A	0	N/A	0	N/A
		N/A	0	N/A	0	N/A

3. Remotes

Number	Title	Trigger	TD	Value	Ramp
CU16	PTM 44 &45	N/A	0		N/A

4. Overrides Override RWCU-MO-56 in the CLOSED position.

Instrument	Tag	Trigger	TD	Value	Ramp
None					

5. Panel Setup	1. Ensure the simulator is in RUN and PTMs are active.

Note: If this JPM is to be performed more than once, take a SNAPSHOT after the panel setup is complete.

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to perform RPV Depressurization with RWCU from the Control Room in accordance with Procedure 5.8.2., RPV Depressurization Systems (Table 2) from the Control Room. Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

If being simulated in the Control Room:

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. The Plant has scrammed.
2. EOPs have been entered.
3. Reactor Depressurization is required per the EOPs.

Initiating Cue(s):

The Control Room Supervisor directs you to depressurize the RPV with RWCU from the control room in accordance with procedure 5.8.2, RPV Depressurization Systems (Table 2). Preferred discharge path is to the Main Condenser.

Notify the CRS when you are depressurizing the RPV with RWCU.

Task No.: 206033P0201

Task Title: START HPCI FROM THE ASD ROOM

Trainee: _____ Examiner: _____

Pass ☐ Fail ☐ Examiner Signature: _____ Date: _____

Additional Program Information:

1. Appropriate Performance Locations: Plant/SIM
2. Appropriate Trainee Level: RO / SRO
3. Evaluation Method __ Simulate __ Perform
4. Performance Time: 15 minutes
5. NRC K/As: 295016 AK2.01 4.4/4.5

Directions to Examiner:

1. This JPM evaluates the trainee's ability to start HPCI from the ASD room.
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. Observe the trainee during performance of the JPM for proper use of self-checking methods.
4. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes section below.
5. Give the trainee Attachment 2.
6. Brief the trainee, place the simulator in run, and tell the trainee to begin.

Notes:

_____
_____
_____
_____
_____
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_____
_____
_____
_____

Task No.: 206033P0201

Task Title: START HPCI FROM THE ASD ROOM

Directions to Trainee:

When I tell you to begin, you are to start HPCI from the ASD room. Before you start, I will state the general plant conditions, the initiating cues, and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders, and controls you would be using. State the position of controls as you would have manipulated them to start HPCI from the ASD room. During performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

General Conditions:

1. 0% Reactor Power, Reactor Scrammed
2. Main turbine tripped.
3. Control Room is filled with toxic gas, non-fire source.
4. CSCS systems are all in standby status.
5. The RCIC system is INOPERABLE for a maintenance outage.
6. The Control Room has been evacuated.

General References:

1. Emergency Procedure 5.1ASD.

General Tools and Equipment:

1. Key for ASD Room
2. Emergency Procedure 5.1ASD, Attachment 1

Special Conditions, References, Tools, Equipment:

1. Simulator Setup: See Attachment 1.
2. Critical checks denoted by "*".
3. Simulator cues denoted by "#".

Task No.: 206033P0201

Task Title: START HPCI FROM THE ASD ROOM

Task Standards:

1. Accurately locate, identify, operate and/or manipulate all component controls required to be utilized to perform control level and pressure with HPCI from the ASD room per Procedure 5.1ASD.
2. 100% of critical elements successfully completed without error.
3. 100% of safety and radiological work practices.

Initiating Cue(s):

You are the ASD Operator and the Shift Manager has directed you to start the HPCI System from the ASD Panel per 5.1ASD, Att.1. Steps 1 through 7 of Attachment 1 have been completed. The Shift Manager is in the TSC; inform him when HPCI is **running and available to be lined up for injection.**

Note: Place the simulator in RUN and tell the trainee to begin.

Task No.: 206033P0201

Task Title: START HPCI FROM THE ASD ROOM

Start Time: _____

Performance Checklist	Standard	Sat	Unsat
1. Determine HPCI not running.	7.2 Observed 0 speed on HPCI-SI-2793, TURBINE SPEED.		
2. Transfer control of HPCI to ASD	**7.3.1 Placed remaining ISOLATION switches in ISOL:** _____ **AOP** _____ **MO-20** _____ **MO-24** _____ **MO-25** _____ **MO-21** _____ **MO-14** _____ **MO-19** _____ **FCU** _____ **GSCB/P** _____ **MO-58** _____ **MO-17** **CUE:** (As operated) each switch is in ISOLATE.		
3. Ensure HPCI 14, 19, 25, & 58 are CLOSED:	7.3.2 Ensured CLOSED the following valves: _____ HPCI-MO-14, STEAM TO TURBINE _____ HPCI-MO-19, INJECTION _____ HPCI-MO-25, MINIMUM FLOW BYPASS _____ HPCI-MO-58, TORUS PUMP SUCTION **CUE (As checked)**: GREEN light ON. RED light OFF.		

Task No.: 206033P0201

Task Title: START HPCI FROM THE ASD ROOM

Performance Checklist	Standard	Sat	Unsat
4. Ensure HPCI 17, 20, 24, and 21 are OPEN:	7.3.3 Ensured OPEN the following valves: _____ HPCI-MO-17, ECST Pump Suction _____ HPCI-MO-20, Pump Discharge _____ HPCI-MO-24, ECST Test Line Shutoff _____ HPCI-MO-21, Test Bypass to ECST **CUE (As checked):** RED light ON. GREEN light OFF.		
5. Start HPCI Room FCU	**7.3.4 Started HPCI Room FC-R-1G.** **CUE:** RED light ON. GREEN light OFF.		
6. Place GSCB in AUTO	**7.3.5 Placed GLAND SEAL CNDSR BLOWER control switch in AUTO.** **CUE:** Switch is in mid-position.		
7. Place GSCCP in AUTO	**7.3.6 Placed GLAND SEAL CNDSR COND PUMP control switch in AUTO.** **CUE:** Switch is in mid-position.		
8. Set HPCI Flow Controller and place in MANUAL	7.3.7 Set HPCI-FIC-1108, HPCI FLOW CONTROLLER to 4250 gpm and placed in MANUAL. **CUE**: The red line on the FIC is on 4250 gpm and tab is to the left.		

Task No.: 206033P0201

Task Title: START HPCI FROM THE ASD ROOM

Performance Checklist	Standard	Sat	Unsat
9. OPEN HPCI-MO-14, Steam to Turbine	**7.3.8 Placed control switch for HPCI-MO-14 to OPEN.** **CUE:** RED light ON, GREEN light OFF.		
10. Start the Auxiliary Oil Pump	**7.3.9 Placed control switch for the auxiliary oil pump to START.** **CUE:** RED light ON, GREEN light OFF.		
11. Ensure the Turbine Speed is >2050 rpm	**7.3.10 Ensured the speed of the HPCI pump is >2050 RPM by adjusting Flow Controller HPCI-FIC-1108 OPEN and CLOSE pushbuttons.** **CUE:** Speed is 3500 RPM.		
12. Inform the Shift Manager the task is complete.	Inform the Shift Manager the HPCI pump is running and available to be lined up for injection. **#CUE:** The Shift Manager acknowledges the report.		

Stop Time: _____

Stop Time: _____

Task No.: 206033P0201

Task Title: START HPCI FROM THE ASD ROOM

ATTACHMENT 1

SIMULATOR SET-UP

A. Materials Required

None

B. Initialize the Simulator in IC-18 or LOR equivalent. (IC-237)

Batch File Name - JPM/342056.

C. Change the simulator conditions as follows:

1. Triggers - None

2. Malfunctions

Number	Title	Trigger	TD	Severity	Ramp	Initial
RC01	RCIC System Failure to Auto Start	N/A	N/A	N/A	N/A	N/A
RP02	Rx Scram	N/A	N/A	N/A	N/A	N/A
FW01a	RFP A Trip	N/A	N/A	N/A	N/A	N/A
FW01b	RFP B Trip	N/A	N/A	N/A	N/A	N/A
TC01	Main Turbine Trip	N/A	N/A	N/A	N/A	N/A
HP01	HPCI System Failure to Start	N/A	N/A	N/A	N/A	N/A
RP08a	Spurious Group 1 Isol. Signal Channel A-1	N/A	N/A	N/A	N/A	N/A
RP08c	Spurious Group 1 Isol. Signal Channel B-1	N/A	N/A	N/A	N/A	N/A

3. Remotes - None

Task No.: 206033P0201

Task Title: START HPCI FROM THE ASD ROOM

4. Overrides - None

5. Panel Setup

    a. Insert Batch File jpm/342056.
    b. Place Simulator in RUN.
    c. Trip all but one Condensate and Condensate booster pump.
    d. Place following HPCI Isolation switches to ISOL.
        LEVEL INDICATORS
        HPCI CONTROL AND INDICATION
        MO-15
        MO-16
    e. Place Simulator in FREEZE.

Note: If this JPM is to be performed more than once, snap the simulator into IC-0 after the Panel setup is complete.

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to start HPCI from the ASD room. Before you start, I will state the general plant conditions, the initiating cues, and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders, and controls you would be using. State the position of controls as you would have manipulated them to start HPCI from the ASD room. During performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

General Conditions:

1. 0% Reactor Power, Reactor Scrammed
2. Main turbine tripped.
3. Control Room is filled with toxic gas, non-fire source.
4. CSCS systems are all in standby status.
5. The RCIC system is INOPERABLE for a maintenance outage.
6. The Control Room has been evacuated.

Initiating Cue(s):

You are the ASD Operator and the Shift Manager has directed you to start the HPCI System from the ASD Panel per 5.1ASD, Att.1. Steps 1 through 7 of Attachment 1 have been completed. The Shift Manager is in the TSC; inform him when HPCI is **running and available to be lined up for injection.**

Task No.: 219001O0101

Task Title: Startup the Suppression Pool Cooling Mode of RHR (Alternate Path)

Trainee: _____ Examiner: _____

Pass ☐ Fail ☐ Examiner Signature: _____ Date: _____

ALTERNATE PATH JPM

Additional Program Information:

1. Appropriate Performance Locations: Simulator
2. Appropriate Trainee level: RO/SRO
3. Evaluation Method: Perform
4. Performance Time: 23 minutes
5. NRC K/A 219000 A4.01 (3.8/3.7)

Directions to Examiner:

NOTE: THIS IS AN ALTERNATE PATH JPM. The first RHR Pump will TRIP when it is started.

1. This JPM evaluates the trainee's ability to startup the suppression pool cooling mode of RHR.
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. Observe the trainee during performance of the JPM for proper use of self-checking methods.
4. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes section below.
5. Give the trainee Attachment 2.
6. Brief the trainee, place the simulator in run, and tell the trainee to begin.

Notes:

_____
_____
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_____
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_____
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_____

Task No.: 219001O0101

Task Title: Startup the Suppression Pool Cooling Mode of RHR (Alternate Path)

Directions to Trainee:

When I tell you to begin, you are to startup the suppression pool cooling mode of RHR. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to startup the suppression pool cooling mode of RHR. During performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

General Conditions:

1. The RHR system is in LPCI Mode standby status per procedure 2.2.69.
2. The RHRSW system is in standby status per procedure 2.2.70.
3. RHR HX A has been in service within the last 7 days.
4. Suppression Pool cooling is NOT required by the EOPs.
5. All procedure prerequisites have been met for placing RHR Loop A in suppression pool cooling.
6. The NLO has completed venting loop A (2.2.69.3 through Step 4.13).
7. ALARA has determined the suction drain flush is not required.
8. The RPs have been notified of the system start.
9. Another operator is to perform 2.2.69.3 Section 3.

General References:

1. Procedure 2.2.69.3
2. Procedure 2.2.70

General Tools and Equipment:

1. Key 2235

Special Conditions, References, Tools, Equipment:

1. Simulator Setup: See Attachment 1.
2. Critical steps denoted **in bold**.
3. Simulator cues denoted by "#".
4. Alternate path denoted by♦.

Task No.: 219001O0101

Task Title: Startup the Suppression Pool Cooling Mode of RHR (Alternate Path)

Task Standards:

1. The operator begins placing RHR Loop A in SPC and after the pump trips, starts another pump and completes placing the loop into service per Procedure 2.2.69.3.
2. 100% of critical elements successfully completed without error.
3. 100% of safety and radiological work practices.

Task No.: 219001O0101

Task Title: Startup the Suppression Pool Cooling Mode of RHR (Alternate Path)

Initiating Cue(s):

The Control Room Supervisor directs you to startup RHR Loop A in suppression pool cooling and establish maximum cooldown rate using the A RHR pump per procedure 2.2.69.3. The hard card is **NOT** to be used. Inform the CRS when the A loop of RHR is in suppression Pool Cooling at maximum cooldown rate.

NOTE: Place the Simulator in RUN and tell the trainee to begin.

Task No.: 219001O0101

Task Title: Startup the Suppression Pool Cooling Mode of RHR (Alternate Path)

Start Time _____

Performance Checklist	Standards	Sat	Unsat
1. Obtained Procedure	Obtained Procedure 2.2.70.		
NOTE to Examiners: Candidate may place A or C SWBP in service.			
2. Place SWBP in service	**5.1.1 Held SWBP A (C) switch to START until pump starts. (Panel 9-3)**		
3. Check AMPS	5.1.2 Checked AMPS normal. (Panel 9-3)		
4. Check MO-89A open	5.1.3 Checked SW-MO-89A, HX-A SW DISCH VLV OPENED. (Panel 9-3)		
5. Adjust flow.	**5.1.4 Adjusted SW-SW-MO89A to maintain close to 4000gpm.**		
6. Check AMPS	Ensured AMPS ≤ 136.		
7. Check HX d/p.	5.1.5 Ensured d/p on SW-DPI-359A ≤ 17.0 psid. (HX Room) #CUE: When contacted as NLO report SW-DPI-359A indicates 4 psid.		
NOTE to Examiners: Tell candidate another operator will record HX d/p in narrative logs.			
8. Inform SM LPCI A inoperable.	4.15 Informed SM LPCI Mode of RHR Subsystem A is inoperable. #CUE: SM acknowledges.		
NOTE to Examiners: Steps 4.16 through 4.18 are N/A.			
9. Open MO-39A	**4.19 Obtained Key and opened RHR-MO-39A, SUPPR POOL COOLING/TORUS SPRAY VLV. (Panel 9-3)**		
10.	4.20 Step is N/A.		
11. Start Pump A	**4.21 Placed control switch for RHR Pump A to START. (Panel 9-3)**		

Task No.: 219001O0101

Task Title: Startup the Suppression Pool Cooling Mode of RHR (Alternate Path)

Performance Checklist	Standards	Sat	Unsat
12. ♦Notices pump did not start.	Observe the RHR Pump A did not start.		
13. ♦Notifies SM or CRS.	Notify the CRS or SM that RHR Pump A did not start. # CUE: The CRS directs the operator to attempt to start RHR Pump C.		
14. ♦Refer to Alarm Card.	Refer to alarm cards 9-3-1/B-4, RHR Pump A Trip and 9-3-1/C4, RHR Pump A Ovld/Ground.		
15. ♦Start Pump C.	**4.21 Placed control switch for RHR Pump C to START. (Panel 9-3)** #CUE: (If asked) CRS states someone else will write a CR on RHR Pump A.		
16. Throttle OPEN RHR-MO-34A .	**4.22 Placed control switch for RHR-MO-34A, SUPPR POOL COOLING INBD THROTTLE VLV, to OPEN to obtain desired flow on RHR-FI-133A or RHR-FR-143. (Panel 9-3)**		
17. Ensure RHR-MO-16A CLOSES.	4.23 Ensured RHR-MO-16A, LOOP A MIN Flow BYP VLV, CLOSES as flow increases >2500 gpm.		
NOTE to Examiners: Candidate may perform ONE of following steps.			
18. CLOSE CM-296.	4.24.1 Direct the Reactor Building NLO to CLOSE CM-296, LOOP A INJECTION LINE PRESSURE MAINTENANCE SHUTOFF. # CUE: The Station Operator reports CM-296 is CLOSED.		

Task No.: 219001O0101

Task Title: Startup the Suppression Pool Cooling Mode of RHR (Alternate Path)

Performance Checklist	Standards	Sat	Unsat
19. Maintain system pressure > Condensate Transfer System pressure .	4.24.2 Maintain RHR Subsystem A pressure > Condensate Transfer System pressure.		
20. CLOSE RHR-MO-66A.	**4.25 Hold in the CLOSE position the control switch for RHR-MO-66A, HX BYPASS VLV, until Red light is OFF.**		
21. Inform the CRS that the task is Complete.	Informed CRS RHR Loop A is in Suppression Pool Cooling with maximum cooldown rate established. # CUE: The CRS acknowledges the report.		

Stop Time _____ **Total Time _____**

Task No.: 219001O0101

Task Title: Startup the Suppression Pool Cooling Mode of RHR (Alternate Path)

ATTACHMENT 1

SIMULATOR SET-UP

A. Materials Required

None

B. Initialize the Simulator in any IC with Torus Temperature below 95°F. (IC-234)

Batch File Name - none.

C. Change the simulator conditions as follows:

1. Triggers

None

2. Malfunctions

RH01A, RHR Pump A Trip

None

3. Remotes

None

4. Overrides

None

5. Panel Setup

a. Initialize the Simulator and place in FREEZE.

b. Insert IMF RH01A.

c. Place Simulator in RUN.

Note: If this JPM is to be performed more than once, snap the simulator into an IC after the panel is complete.

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to startup the suppression pool cooling mode of RHR. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to startup the suppression pool cooling mode of RHR. During performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

General Conditions:

1. The RHR system is in LPCI Mode standby status per procedure 2.2.69.
2. The RHRSW system is in standby status per procedure 2.2.70.
3. RHR HX A has been in service within the last 7 days.
4. Suppression Pool cooling is NOT required by the EOPs.
5. All procedure prerequisites have been met for placing RHR Loop A in suppression pool cooling.
6. The NLO has completed venting loop A (2.2.69.3 through Step 4.13).
7. ALARA has determined the suction drain flush is not required.
8. The RPs have been notified of the system start.
9. Another operator is to perform 2.2.69.3 Section 3.

Initiating Cues:

The Control Room Supervisor directs you to startup RHR Loop A in suppression pool cooling and establish maximum cooldown rate using RHR Pump A per procedure 2.2.69.3. The hard card is **NOT** to be used. Inform the CRS when RHR Loop A is in suppression Pool Cooling at maximum cooldown rate.

Task No.: 208028P0101

Title: Separation of REC Critical Loops

Trainee: _____ Examiner: _____

Pass ☐ Fail ☐ Examiner Signature: _____ Date: _____

Additional Program Information:

1. Appropriate Performance Locations: CR / SIM
2. Appropriate Trainee level: RO / SRO
3. Evaluation Method: Simulate Perform
4. Performance Time: 5 minutes
5. K/A 295018; AA1.03 (3.3/3.4), AK3.07 (3.1/3.2)

Directions to Examiner:

1. This JPM evaluates the trainee's ability to separate the REC Critical Loops.
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. Observe the trainee during performance of the JPM for proper use of self-checking methods.
4. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes section below.
5. Give the trainee Attachment 2.
6. Brief the trainee, place the simulator in run, and tell the trainee to begin.

Notes: _____

Title: Separation of REC Critical Loops

Directions to Trainee:

When I tell you to begin, you are to separate the REC Critical Loops. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders, and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

General Conditions:

1. A large leak has developed in the REC system.
2. Emergency Procedure 5.2REC, Loss of REC, has been entered and actions taken up to separating the REC Critical Loops.

General References:

1. Procedure 5.2REC
2. Procedure 2.2.65.1

General Tools and Equipment:

1. None

Special Conditions, References, Tools, Equipment:

1. Simulator Setup: See Attachment 1.
2. Critical checks denoted **in bold**.
3. Simulator cues denoted by "**#**".

Task Standards:

1. Separates the REC critical loops per Procedure 5.2REC.
2. 100% of critical elements successfully completed without error.
3. 100% of safety and radiological work practices.

Title: Separation of REC Critical Loops

Initiating Cue(s):

The Control Room Supervisor directs you to separate the REC Critical Loops per 5.2REC, using the NORTH Critical Loop. RMP-RM-351A, SW A EFFLUENT RAD MON, is operable.
Inform the CRS when you have separated the REC Critical Loops.

NOTE: Ensure the Simulator is in RUN and tell the trainee to begin. (**Delete malfunction SW12B**)

Title: Separation of REC Critical Loops

Start Time: _____

Performance Checklist	Standards	Sat	Unsat
1. **Close REC-MO-695.**	**1.1 Closed REC-MO-695, CRITICAL LOOP SUPPLY CROSSTIE.** **CUE:** GREEN light ON, RED light OFF.		
2. **Close REC-MO-694.**	**1.2 Closed REC-MO-694, CRITICAL LOOP SUPPLY CROSSTIE.** **CUE:** GREEN light ON, RED light OFF.		
3. **Close REC-MO-721.**	**1.3 Closed REC-MO-721, NON CRITICAL HEADER RETURN.** **CUE:** GREEN light ON, RED light OFF.		
4. **Close REC-MO-722.**	**1.4 Closed REC-MO-722, NON CRITICAL HEADER RETURN.** **CUE:** GREEN light ON, RED light OFF.		
5. Ensure REC-19 is open.	1.5 Directed NLO to ensure REC-19 is open. REC HX B INLET (R-931-N REC Hx area). #CUE: As the NLO report REC-19 is open.		
6. Ensure REC-21 is open.	1.6 Directed NLO to ensure REC-21 is open. REC HX A INLET (R-931-N REC Hx area). #CUE: As the NLO report REC-21 is open.		
NOTE to Examiner: Booth operator must insert TRIGGER 2 to close the valves in next two steps.			
7. Remove seal and close REC-18.	1.7 Directed NLO to Close REC-18, REC HX A INLET (R-931-N REC Hx area). #CUE: As NLO, report REC-18 is closed.		
8. Remove seal and close REC-20.	1.8 Directed NLO to Close REC-20, REC HX B INLET (R-931-N REC Hx area). #CUE**:** As NLO, report REC-20 is closed.		

Performance Checklist	Standards	Sat	Unsat
9. Select a critical subsystem.	1.9 Selects a critical subsystem to align. (North is assumed).		
10. Ensure REC-TCV-451A switch is in open.	1.10.1 Ensured REC-TCV-451A, REC HX A SW OUTLET TEMPERATURE CONTROL, switch is in OPEN. CUE: Point to switch indicating it is pointing to OPEN.		
11. **Throttle open SW-MO-650.**	**1.10.2 Throttled open SW-MO-650 to obtain 400 to 1200 gpm flow on SW-FI-387A, REC HX A SW OUTLET.** **CUE: Point indicating SW-FI-387A indicates 600 gpm.**		
12. Ensure REC-MO-712 is closed.	1.10.3 Ensured REC-MO-712, HX A OUTLET VLV, is closed. CUE: GREEN light On, RED light OFF.		
13. Ensure REC-MO-711 is open.	1.10.4 Ensured REC-MO-711, NORTH CRITICAL LOOP SUPPLY is open. CUE: GREEN light OFF. RED light ON. CUE: If asked as the NLO report no visible leaks exist on the system.		
14. Open REC-MO-722.	1.10.5 If REC Surge Tank is available, opened REC-MO-722. CUE: IF student chooses to open REC-MO-722, the red light is ON and green light is OFF.		

Performance Checklist	Standards	Sat	Unsat
15. **Ensure REC PUMP C or D is running.**	**1.10.6 Started REC PUMP:** **_____ C** **OR** **_____D** **CUE: REC PUMP C (D) red light came ON.**		
16. Inform CRS the task is complete.	Inform the CRS the REC Critical loops are separated. #CUE: CRS acknowledges the report.		

Stop Time: _____ **Total Time: _____**

ATTACHMENT 1

SIMULATOR SET-UP

A. Materials Required	None
B. Initialize the Simulator in IC	Any power IC. (IC-235)
DO NOT LOAD BATCH FILE UNTIL DIRECTED BY SETUP!!	
C. Run Batch File	Jpm/342144
D. Change the simulator conditions as follows:	

1. Triggers

Number	File Name	Description
None		

2. Malfunctions

Number	Title	Trigger	TD	Severity	Ramp	Initial
SW12B	REC HX 1B Tube Leak	A	N/A	60%	N/A	N/A
Rp05	Group 2 isolation failure	A	N/A	N/A	N/A	N/A
RP14	CREFS Auto Initiation failure	A	N/A	N/A	N/A	N/A
RP15	Group 6 isolation failure	A	N/A	N/A	N/A	N/A

3. Remotes

Number	Title	Trigger	TD	Value	Ramp
SW02	REC HX1B Inlet Isol Vlv (REC-V-18)	2	N/A	CLOSE	N/A
SW04	REC HXA Inlet Isol Vlv (REC-V-20)	2	N/A	CLOSE	N/A
RR03	RRMG A DC Oil Pump			STOP	N/A
RR04	RRMG B DC Oil Pump			STOP	N/A

4. Overrides

Instrument	Tag	Trigger	TD	Value	Ramp
None					

5. Panel Setup	a. Place the Simulator in RUN. b. Insert batch file (JPM/342144). c. Run the simulator long enough for the surge tank level to drop. d. Perform actions of EP 5.2REC up to the point of splitting the REC Critical Loops (all REC pumps off). These actions include scramming the reactor, tripping the RR pumps, stopping the RRMG oil pumps, and stopping the running CRD pump. e. DELETE SW11c and SW11d, REC pump C and D trips. f. FREEZE the simulator. g. When JPM begins and simulator is taken to RUN, **DELETE** the malfunction SW12b.
Note: If this JPM is to be performed more than once, take a SNAPSHOT after the panel setup is complete.	

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to separate the REC Critical Loops. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders, and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

General Conditions:

1. A large leak has developed in the REC system.
2. Emergency Procedure 5.2REC, Loss of REC, has been entered and actions taken up to separating the REC Critical Loops.

Initiating Cue(s):

The Control Room Supervisor directs you to separate the REC Critical Loops per 5.2REC, using the NORTH Critical Loop. RMP-RM-351A, SW A EFFLUENT RAD MON, is operable.
Inform the CRS when you have separated the REC Critical Loops.

Task No.: 286005I0102

Task Title: Operate the Diesel Fire Pump Manually (Alternate Path)

Trainee: _____ Examiner: _____

Pass ☐ Fail ☐ Examiner Signature: _____ Date: _____

THIS IS AN ALTERNATE PATH JPM

Additional Program Information:

1. Appropriate Performance Locations: Plant
2. Appropriate Trainee Level: SO / RO / SRO
3. Evaluation Method: __ Simulate __ Perform
4. Performance Time: 12 minutes
5. NRC K/A 286000 A4.06(3.4/3.4)

Directions to Examiner:

THIS IS AN ALTERNATE PATH JPM. The First Method Of Starting The Diesel Will Be Unsuccessful.

1. This JPM evaluates the trainee's ability operate the diesel fire pump manually.
2. Observe the trainee during performance of the JPM for proper use of self-checking methods.
3. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes/comments section below.
4. Brief the trainee, place the simulator in run, and tell the trainee to begin.

Notes/Comments:

Task No.: 286005I0102

Task Title: Operate the Diesel Fire Pump Manually (Alternate Path)

Directions to Trainee:

When I tell you to begin, you are to operate the diesel fire pump manually. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. The plant has experienced a fire.
2. The "C" fire pump is out of service.
3. The electric fire pump is unable to maintain system pressure.
4. The Diesel Fire Pump has failed to auto start.

General References:

1. Procedure 2.2.30

General Tools and Equipment:

1. Master key for building access

Special Conditions, References, Tools, Equipment:

1. Critical checks denoted by **bold text.**
2. Alternate path denoted by♦.

Task Standards:

1. The operator attempts to start the diesel fire pump normally but must start it by selecting emergency run and closing contactor A per Procedure 2.2.30.
2. 100% of critical elements successfully completed without error.
3. 100% of safety and radiological work practices.

Initiating Cue(s):

The Control Room Supervisor directs you to start the diesel fire pump at FP-PNL-F2 in the diesel fire house **AND** check engine parameters per procedure 2.2.30. Notify the CRS when the task is complete.

Task No.: 286005I0102

Task Title: Operate the Diesel Fire Pump Manually (Alternate Path)

Performance Checklist	Standards	Sat	UNSAT
1. Check the engine oil level.	9.1 Checked the engine oil level is normal. CUE: Engine oil level is at normal.		
2. Check the engine cooling reservoir NOTE: The reservoir is above the control panel.	9.2 Checked the engine cooling water reservoir is full. CUE: The water level is at the top of the reservoir.		
3. Start Exhaust Fan	9.3 If room exhaust fans are not running (above small damper in Fire Pump D Room ceiling), adjust Fire Pump D Room thermostat (west wall) to start fans. CUE: Exhaust Fan is running.		
4. Start FP-P-D	9.4.1 At Panel FA, placed DIESEL FIRE PUMP D switch to START. CUE: Switch in Start Engine is not rolling.		
5. ♦Select Switch to Manual 1	9.4.2.1 Placed selector switch to MANUAL 1 or MANUAL 2. CUE: In Manual 1 position.		
6. ♦Press START button	9.4.2.2 Pressed START button. CUE: Engine cranking is sluggish and noise in room remains low.		
7. ♦Select Switch to Manual 2 and press START button	a. Placed selector switch to MANUAL 2 and pressed START button. CUE: Engine cranking is sluggish and noise in room remains low.		
7. ♦Select Emergency Run	**9.5.1 Rotated Governor Manual Lever counter-clockwise to EMERGENCY RUN (located on top of engine).** **CUE: Lever in EMERGENCY RUN.**		

Task No.: 286005I0102

Task Title: Operate the Diesel Fire Pump Manually (Alternate Path)

8. ♦Close CONTACTOR A	**9.5.2 Pulled operating lever on either CONTACTOR A or CONTACTOR B (located on north side of engine below block heater) to start engine.** **CUE: Sound of engine cranking briskly.** **CUE: Sound of engine running.**		
9. Open FP-705.	**9.5.3.1 Opened FP-705, COOLING SYSTEM MANUAL BYPASS VALVE.** **CUE: Hand wheel is fully counter-clockwise.**		
10. Open FP-706.	**9.5.3.2 Opened FP-706, COOLING SYSTEM MANUAL BYPASS VALVE.** **CUE: Hand wheel is fully counter-clockwise.**		
11. Check flapper FP-FG-10.	9.5.3.3 Ensured flow flapper in FP-FG-10 (North side above diesel) is in horizontal position. CUE: Flapper is in horizontal position.		
12. Check Engine Parameters.	9.6.1 Check: Circulation water temperature, Lube Oil Pressure, Engine RPM. CUE: Circulation water temperature 180°F Lube Oil Pressure is 45 psig Engine Speed is 1800 RPM		
13. Contacts the Control Room Operator.	The operator calls the Control Room and reports Diesel Fire Pump “D”: is running normal CUE: Respond as Control Room Operator.		

ATTACHMENT 1

When I tell you to begin, you are to operate the diesel fire pump manually. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. The plant has experienced a fire.
2. The "C" fire pump is out of service.
3. The electric fire pump is unable to maintain system pressure.
4. The Diesel Fire Pump has failed to auto start.
5. The Diesel Fire Pump cannot be started at panel FA.

Initiating Cues:

The Control Room Supervisor directs you to start the diesel fire pump at FP-PNL-F2 in the diesel fire house **AND** check engine parameters per procedure 2.2.30. Notify the CRS when the task is complete.

Task No.: 263030P0104

PLACE 24 VDC BATTERIES AND ASSOCIATED CHARGERS IN SERVICE

Trainee: _____ Examiner: _____

Pass: _____ Fail: _____ Examiner Signature: _____ Date: _____

Additional Program Information:

1. Appropriate Performance Locations: Plant
2. Appropriate Trainee Levels: SO / RO / SRO
3. Evaluation Method: Perform ___ Simulate __
4. Performance Time: 15 minutes
5. Importance Factor: 2.75
6. NRC K/A: 263000 SG9(3.4/3.5)

Directions to Examiner:

1. This JPM evaluates the trainee's ability to place 24 VDC batteries and associated chargers in service in accordance with Procedure 2.2.26, 24 VDC Electrical System.
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. Observe the trainee during performance of the JPM for proper use of self-checking methods.
4. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes/comments section below.
5. Brief the trainee, place the simulator in run, and tell the trainee to begin.

Notes/Comments: _____

Task No.: 263030P0104

PLACE 24 VDC BATTERIES AND ASSOCIATED CHARGERS IN SERVICE

Directions to Trainee:

When I tell you to begin, you are to place 24 VDC batteries and associated chargers in service in accordance with Procedure 2.2.26, 24 VDC Electrical System. Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

If being simulated in the Control Room:

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. A refuel outage is in progress.
2. 1A1 and 1A2 24 VDC batteries have been replaced.

General References:

1. Procedure 2.2.26, 24 VDC Electrical System

General Tools and Equipment:

1. None

Special Conditions, References, Tools, Equipment:

1. Critical checks denoted by **bold steps.**
2. Simulator cues denoted by "#".

Task Standards:

1. Accurately locate, identify, operate and/or manipulate all component controls required to be utilized to place 24 VDC batteries and associated chargers in service per Procedure 2.2.26.
2. 100% of critical elements successfully completed without error.
3. 100% of safety and radiological work practices.

Task No.: 263030P0104

PLACE 24 VDC BATTERIES AND ASSOCIATED CHARGERS IN SERVICE

Initiating Cue(s):

The BOP operator has directed you to return the 1A1 and 1A2 battery chargers and associated 24 VDC batteries to service in accordance with Procedure 2.2.26, 24 VDC Electrical System. . All prerequisites have been completed or verified.

Notify the Control Room Supervisor when the 1A1 and 1A2 battery chargers and 24 VDC batteries have been returned to service.

NOTE: Tell the trainee to begin.

Task No.: 263030P0104

PLACE 24 VDC BATTERIES AND ASSOCIATED CHARGERS IN SERVICE

Start Time: _____

Performance Checklist	Standards	Sat	Unsat
1. Obtain the procedure	The operator obtained 2.2.26 at section 6, Placing 24V Batteries 1A1 and 1A2 in service.		
2. Verify the 24 VDC Batteries 1A1 and 1A2 are free of foreign materials.	6.1 Verified the batteries 1A1 and 1A2 free of foreign materials. #CUE: No foreign materials present.		
3. CLOSE the 24 VDC BATTERY A1/A2 DISCONNECT switch.	6.2 CLOSED the 24 VDC BATTERY A1/A2 DISCONNECT switch. #CUE: DISCONNECT switch is DOWN For closed position?		
4. Verify OPEN the AC INPUT BREAKERS on 24 VDC CHARGERS 1A1 AND 1A2.	8.2/3 Verified OPEN the AC INPUT BREAKERS on 24 VDC CHARGERS 1A1 and 1A2. #CUE: The breaker handles are down.		
5. Verify OPEN the DC OUTPUT BREAKERS on 24 VDC CHARGERS 1A1 and 1A2.	8.4/5 Verified OPEN the DC OUTPUT BREAKERS on 24 VDC CHARGER 1A1 and 1A2. #CUE: The breaker handles are down.		
6. Verify EQUALIZING timer on 24 VDC CHARGERS 1A1 and 1A2 set at zero	8.6/7 Verified the EQUALIZING timer on 24 VDC CHARGERS 1A1 and 1A2 was set at zero. #CUE: Using a pen, indicate that the timer is at zero (full CCW).		
7. CLOSE the DC OUTPUT BREAKERS on 24 VDC CHARGER 1A1 and 1A2	**8.8/9 CLOSED the DC OUTPUT BREAKERS on 24 VDC CHARGER 1A1 and 1A2.** **#CUE: The breakers are CLOSED.**		
8. Verify CLOSED Bkr 5 on CDP-1A, Feeder to 24 VDC Battery Chargers 1A1 and 1A2	8.10 Verified CLOSED Bkr 5 on CDP-1A. #CUE: The breaker is in the UP? position		

Task No.: 263030P0104

PLACE 24 VDC BATTERIES AND ASSOCIATED CHARGERS IN SERVICE

Performance Checklist	Standards	Sat	Unsat
9. CLOSE the AC INPUT BREAKERS on 24 VDC CHARGER 1A1 and 1A2	**8.11 CLOSED the AC INPUT BREAKERS on 24 VDC CHARGER 1A1 and 1A2.** **#CUE: The breakers are CLOSED.**		
10. Verify the GREEN AC ON INDICATING LIGHT on 24 VDC CHARGER 1A1 and 1A2 is illuminated	8.11.1.1 Verified the AC ON INDICATING LIGHTS were illuminated. #CUE: The GREEN lights are illuminated.		
11. Verify that the voltmeters on 24 VDC CHARGER 1A1 and 1A2 are reading ~26.5 VDC.	8.11.1.2 Verified the voltmeters to be reading ~26.5 VDC. #CUE: With a pen and the respective Voltmeters, point to ~ 27 VDC.		
12. Verify annunciators.	8.11.1.4 Verified with the Control Room that Annunciators C-2/A-7 and C-2/B-7 are clear. #CUE: The annunciators are clear.		
13. Test GROUND DETECTION indicating lights	10.1.1 Placed GND. DETECTION toggle switch on 24V Charger 1A1 to LAMP TEST and checked that the red GND DET indicating lights turned on. #CUE: The Red GND DET indicating lights are on.		
14. Test for grounds on 24 VDC CHARGER 1A1	10.1.2 Placed GND. DETECTION toggle switch on 24V Charger 1A1 to GND. DET and checked left red GND DET indicating light turned on and right red GND DET indicating light remained off. #CUE: Left light ON, right light OFF.		
15. Test GROUND DETECTION indicating lights	10.2.1 Placed GND. DETECTION toggle switch on 24V Charger 1A2 to LAMP TEST and checked red GND DET indicating lights turned on. #CUE: The Red GND DET indicating lights turn on.		
16. Test for grounds on 24 VDC CHARGER 1A2	10.2.2 Placed GND. DETECTION toggle switch on 24V Charger 1A2 to GND.		

Task No.: 263030P0104

PLACE 24 VDC BATTERIES AND ASSOCIATED CHARGERS IN SERVICE

Performance Checklist	Standards	Sat	Unsat
	DET and checked right red GND DET indicating light turned on and left red GND DET indicating light remained off. #CUE: Right light ON, left light OFF.		
17. Verify voltage indications on 24 VDC Power Panel DC-A to be ~26.5 VDC	8.15 Verified voltages on Panel DC-A to be ~ 26.5 VDC #CUE: With a pen and the respective Voltmeters, indicate ~ 26.7 VDC		
18. Notify the CRS that task is completed.	The operator contacted the CRS and informed him that 1A1 and 1A2 24 VDC Battery Chargers and Batteries have been returned to service. CUE: The BOP operator acknowledges the report.		

Stop Time: _____ **Total Time: _____**

Task No.: 263030P0104

ATTACHMENT 1

Directions to Trainee:

When I tell you to begin, you are to place 24 VDC batteries and associated chargers in service in accordance with Procedure 2.2.26, 24 VDC Electrical System. Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

If being simulated in the Control Room:

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. A refuel outage is in progress.
2. 1A1 and 1A2 24 VDC batteries have been replaced.

Initiating Cue(s):

The BOP operator has directed you to return the 1A1 and 1A2 battery chargers and associated 24 VDC batteries to service in accordance with Procedure 2.2.26, 24 VDC Electrical System. . All prerequisites have been completed or verified.

Notify the Control Room Supervisor when the 1A1 and 1A2 battery chargers and 24 VDC batteries have been returned to service.

Task No.: 200223A0501

Title: ALTERNATE BORON INJECTION WITH RCIC

Trainee: _____ Examiner: _____

Pass ☐ Fail ☐ Examiner Signature: _____ Date: _____

Additional Program Information:

1. Appropriate Performance Locations: Plant
2. Appropriate Trainee level: NLO / RO / SRO
3. Evaluation Method: Simulate Perform
4. Performance Time: 20 minutes
5. NRC K/A 295037 EK2.1.3 (RO 3.4 / SRO 4.1)

Directions to Examiner:

1. This JPM evaluates the trainee's ability to perform Alternate Boron Injection with RCIC in accordance with Procedure 5.8.8, Alternate Boron Injection and Preparation.
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. Observe the trainee during performance of the JPM for proper use of self-checking methods.
4. Check off either satisfactory or unsatisfactory performance. If Unsat state why in the notes/comments section below.
5. Brief the trainee, place the simulator in run, and tell the trainee to begin.

Notes/Comments: _____

Title: ALTERNATE BORON INJECTION WITH RCIC

Directions to Trainee:

When I tell you to begin, you are to perform Alternate Boron Injection with RCIC in accordance with Procedure 5.8.8, Alternate Boron Injection and Preparation.

Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1. The Plant has entered EOP 6A due to a Scram without rods inserting completely.
2. SLC is unavailable for Boron injection to the RPV.
3. Boron Injection is required.

General References:

1. Procedure 5.8.8, Alternate Boron Injection and Preparation

General Tools and Equipment:

1. J423 Key (PTM box padlock)
2. Flat Tip Screwdriver
3. (2) Spanner Wrenches
4. 200' of 1.5" fire hose (R-976-E inside EOP Storage Box) for Alternate Boron Injection with the RCIC System
5. Two pipe wrenches (stored on the R-903-NE Quad Alternate Boron Injection hose reel)

Special Conditions, References, Tools, Equipment:

1. J423 Key (PTM box padlock), Flat Tip Screwdriver, (2) Spanner Wrenches, 200' of 1.5" fire hose (R-976-E inside EOP Storage Box) for Alternate Boron Injection with the RCIC System, Two pipe wrenches (stored on the R-903-NE Quad Alternate Boron Injection hose reel)
2. Critical checks denoted **in bold.**
3. Simulator cues denoted by "#".

Title: ALTERNATE BORON INJECTION WITH RCIC

Task Standards:

1. Place Alternate Boron Injection in service using RCIC in accordance with Procedure 5.8.8 Alternate Boron Injection and Preparation.
2. 100% of critical elements successfully completed without error.
3. 100% of safety and radiological work practices.

Initiating Cue(s):

The Control Room Supervisor directs you perform Alternate Boron Injection with RCIC in accordance with Procedure 5.8.8, Alternate Boron Injection and Preparation.

Notify the CRS when Alternate Boron Injection is in service using RCIC.

Task No.: 200223A0501

Title: ALTERNATE BORON INJECTION WITH RCIC

Start Time: _____

Performance Checklist	Standards	Sat	Unsat
1. Obtain Procedure	The Operator obtained the current revision of Procedure 5.8.8. Alternate Boron Injection and Preparation Selects Section 7.		
2. Ensure RCIC Lineup	**7.3.1 Ensured SLC-17, TANK DRN, is closed (R-976-East).** **#CUE: The valve is fully clockwise and the hand-wheel has resistance. If there is a valve position indicator, use it and point with a pen to the closed indication**		
3. Drain cap removed and hose attached.	**7.3.2 Removed drain cap on outlet of SLC-17 and attached Alternate Boron Injection hose obtained from dedicated hose reel on R-976-East** **#CUE: Drain cap is removed and hose is attached**		
4. Thread hose through pipe chase	**7.3.3 Connected hose dropped from 976 level of Reactor Building to 903 level of NE Quad stairwell.** #CUE: Hoses are connected		
5. Connect Hose	**7.3.4 Connected hose to Alternate Boron Injection hose obtained from dedicated hose reel on 903 level of NE Quad stairwell** #CUE:Hoses are connected.		
6. Thread hose through door and down stairs	**7.3.5 Threaded second hose through R-903-NE Quad door and down to elevation 859 between stairs** #CUE:Hose is installed.		

Performance Checklist	Standards	Sat	Unsat
7. Remove Elbow on Drain Valve	**7.3.6 Using two pipe wrenches obtained from R-903-NE Quad Alternate Boron Injection hose reel, remove 90° elbow from end of pipe on outlet of RCIC-179, RCIC PUMP SUCTION STRAINER DRAIN SHUTOFF (R-859-NE QUAD).** #CUE:Elbow is removed.		
8. Attach hose to RCIC Suction	**7.3.7 Attached hose to end of pipe on outlet of RCIC-179, RCIC PUMP SUCT. STRN. DRN. SHUTOFF (R-859-NE QUAD)** #CUE:Hose is attached.		
9. Inform CRS SLC aligned to RCIC	7.3.8 Informed CRS that Alternate Boron Injection line from SLC tank to RCIC suction is installed. #CUE:CRS acknowledges alignment.		
10. Verify RCIC alignment In Control Room	7.4 Contacted the control room RO to ensure the RCIC Pump was running and system valves were aligned: • RCIC-MO-20, PUMP DISCH VLV, is OPEN • RCIC-MO-21, PUMP DISCH TO RX VLV, is OPEN • RCIC-MO-30, TEST BYP TO ECST VLV, is CLOSED. • RCIC-MO-33, ECST TEST LINE SHUTOFF VLV, is CLOSED • RCIC-MO-27, MIN FLOW BYP VLV, is CLOSED #CUE: Confirm RCIC Pump is running and Repeat Valve positions.		

Title: ALTERNATE BORON INJECTION WITH RCIC

Performance Checklist	Standards	Sat	Unsat
11. Opens breakers for valves	**7.4.7 Opened breakers for the following valves (R-903-NE, RCIC STARTER RACK):** **RCIC-MO-33, ECST TEST LINE SHUTOFF.** **RCIC-MO-27, MIN FLOW BYP VLV.** #CUE:The breakers are in the UP positions?		
12. Commences Boron Injection	**7.5 Commenced Alternate Boron Injection by opening following valves:** **7.5.1 SLC-17, TANK DRN (R-976-E).** **7.5.2 RCIC-179, RCIC PUMP SUCT. STRN. DRN. SHUTOFF (R-859-NE QUAD).** **7.5.3 RCIC-47, RCIC PUMP SUCT. STRN. DRN. ROOT (R-859-NE QUAD).** #CUE:As each valve's handwheel is turned (CCW), the valve's hand-wheel turns until resistance is felt. If there is an indicator for open and closed, point to OPEN. Also, if each valve has a rising stem, then communicate that as well.		
13. Notifies the CRS	7.7 Informed CRS that alternate boron injection via RCIC is in progress. #CUE: CRS acknowledges.		

Stop Time: _____ **Total Time: _____**

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to perform Alternate Boron Injection with RCIC in accordance with Procedure 5.8.8, Alternate Boron Injection and Preparation.

Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

General Conditions:

1 The Plant has entered EOP 6A due to a Scram without rods inserting completely.
2 SLC is unavailable for Boron injection to the RPV.
3 Boron Injection is required.

Initiating Cue(s):

The Control Room Supervisor directs you perform Alternate Boron Injection with RCIC in accordance with Procedure 5.8.8, Alternate Boron Injection and Preparation.

Notify the CRS when Alternate Boron Injection is in service using RCIC.

Facility: Cooper Nuclear Station Scenario No.: 1 Op-Test No.: 1

Examiners: _____ Operators: _____
_____ _____
_____ _____

Initial Conditions: Plant operating at 85% power (BCL), D CWP out of service.

Turnover: Return D CWP to service, 2.2.3 completed to step 5.5, backwash completed, Continue startup to 100% power.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N (BOP)	Place Circulating Water Pump D in service (2.2.3)
2	N/A	TS (SRO)	Enters Tech Spec 3.8.1. Condition B Diesel Generator Jacket Water Cooling Temperature Low.
3	N/A	R (ATC)	Raise Reactor Power using reactor recirculation (2.1.10)
4	RR17a	C (ATC)	RR Pump A runs back in speed on the power rise and must be locked out to halt to speed drop. (Abnormal Procedure 2.4RR).
5	N/A	TS (SRO)	Enters Tech Spec 3.1.7, Condition A (Based on SLC Tank Suction to pump A Closed)
6	EG03	C (BOP)	H2 Gas leak in Generator (Abnormal Procedure 2.4 Gen)
7	N/A	N, R (ATC)	Reduce power using Recirculation Pump Flow (2.1.10)
8	N/A	M , (©) (Crew)	Unit SCRAM due to Generator hydrogen leak (EOP 1A, 6A,7A)
9	RD15	I , (©) (ATC)	ATWS Manually insert control rods with RMCS (EOP 5.8.3)
10	ED19c	C (BOP)	125V DC power panel AA-3 loses power. (Emergency Procedure 5.3DC125)
11	FW18b MS02b	C , (©) (ATC)	FW Line B Break inside DW (transition to ECCS for RPV Level Control) 2.4MC-RF and 2.4PC.
12	RC04	C (BOP)	RCIC controller fails downscale in AUTO, works in Manual

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (T)echnical Specifications, (©) CT

Initial Conditions: 85% power (BCL), “D” CWP out of service,

Turnover:

The “D” CWP will be returned to service, 2.2.3 completed to step 5.5, backwash completed, continue startup to 100% power using reactor recirculation system.

Description:

BOP Operator will place the 4th Circulating Water Pump in service per procedure 2.2.3 Circulating Water System Operation.

The BOP operator will respond to annunciator C-1/E-3, Diesel Gen 1 Trouble and direct a plant operator to investigate. Low jacket cooling water temperature with a jacket heater failure will make DG1 Inoperable. This will require the SRO to enter Tech Spec 3.8.1, Condition B (Based on DG1 being INOP) and determine that SR 3.8.1.1, Verification of Electrical Sources within one hour and it must be restored within 4 hours per action B.1.and B.2

The ATC will raise reactor power using Reactor Recirculation flow at least 5% power using procedure 2.1.10, Station Power Changes. During the power rise, RR Pump A will run back in speed requiring the ATC to stop the speed reduction by locking out the pump's scoop tube. Abnormal Procedure 2.4RR is entered. The CRS will enter TS LCO 3.4.1, Condition B is RR pump speeds differ by more than 5%.

A non-licensed operator will call the control room and report that the SLC - 48, Pump A Tank suction valve is unlocked and closed. This will require the SRO to enter Tech Spec 3.1.7, Condition A.

The BOP operator will respond to a H_2 Gas leak on the main generator. Abnormal procedure 2.4GEN-H2 will be entered requiring the operator to remove the generator from service due to excessive leakage.

The ATC will reduce Reactor Recirculation flow to lower power in preparation for removing the reactor from service using procedure 2.1.10, Station Power Changes.

When the reactor is SCRAMMED 15 control rods fail to fully insert (ATWS). The SRO will enter EOPs 6A and 7A. The ATC will insert control rods per EOP 5.8.3 using the reactor manual control system.

After the scram the 125V DC Panel AA-3 will lose power. The crew will enter 5.3DC125 and shift loads that have lost power.

A small Feedwater line break will occur inside the drywell requiring the BOP operator to utilize ECCS systems to maintain reactor water level, and both the ATC and BOP operators will take actions to restore RPV water level and containment parameters. The drywell will require containment sprays to maintain pressure within acceptable limits.

When RCIC is started the BOP Operator will recognize the Controller is not working In AUTO and transfer the controller to MANUAL to control Reactor Water Level per procedure 2.2.67 RCIC System Operation.

The scenario ends when Drywell pressure is being controlled and Reactor Water Level is restored to the normal band and all control rods are inserted.

Op-Test No.: 1		**Scenario No.:** 1 **Event No.:** 1
Event Description: Place Circulating Water Pump D in service		
Time	**Position**	**Applicant's Action or Behavior**
	BOP	Perform operator action of procedure 2.2.3, Circulating Water System, (Section 5.5) 5.5 Verifies pump has been backwashed per Section 9, (See turnover sheet). 5.6 Place and hold control switch for CIRC WATER PUMP to be started to START until pump starts and check following: 5.6.1 Discharge valve is opening and pump starts after valve has partially opened. 5.6.2 Pump motor current is < 218 amps. 5.6.3 Pump discharge pressure is within acceptable operating limits per Attachment 1. 5.7 Restore valves operated in Step 5.3.6 to full open. 5.8 Ensure ≥ 7 gpm bearing water flow being maintained as indicated on CW-FIS-351. 5.8.1 Annunciator A-4/C-3, CIRC WATER PUMP BRG WTR LOW FLOW, not alarming for pump started. 5.8.2 Verify sufficient gland water leakoff.
	Booth Operator	**ROLE PLAY: If requested as NLO to check CWP D gland water leakoff and bearing water report flow is normal.**
	BOP	Informs CRS that D Circulating Water Pump is in service.
	CRS	Acknowledges D Circulating Water Pump in service.
		END OF EVENT

Op-Test No.: 1	**Scenario No.:** 1	**Event No.:** 1
Event Description: Place Circulating Water Pump D in service		

Time	**Position**	**Applicant's Action or Behavior**
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1	**Scenario No.:** 1	**Event No.:** 2
Event Description: Diesel Generator Jacket Cooling Water Temperature Low		

Time	Position	Applicant's Action or Behavior
	Booth Operator	**ROLE PLAY: When directed by the Lead Examiner insert Override On for annunciator C-1/E-3, Diesel Gen 1 Trouble.**
	BOP	Respond to annunciator C-1/E-3, Diesel Gen 1 Trouble. Dispatch NLO to investigate alarm on panel DG-1.
	Booth Operator	**ROLE PLAY: When directed as NLO to investigate, wait 5 minutes and DELETE override on alarm C-1/E-3 then report DG-1/A-1, Jacket Water Low Temperature is alarming and the jacket water heater will not turn on. Jacket water temperature indicates 99 °F and DG-1 is Inop per ARP.**
	CRS	Enter Tech Spec 3.8.1 AC Sources — Operating, Condition B, and determine the Diesel Generator is INOP and actions B.1 and B.2 are required. B1. Perform SR 3.8.1.1 for OPERABLE offsite circuit(s) within one hour and every 8 hours thereafter. AND B.2 Declare required feature(s), supported by the inoperable DG, inoperable when the redundant required feature(s) are inoperable within four hours.
	BOP	Review and perform SR 3.8.1.1, Verify correct breaker alignment and indicated power availability for each offsite circuit.
NOTE : Performance of SR 3.8.1.1 is not required for up to one hour and may not be started immediately		
		END OF EVENT

Op-Test No.: 1	**Scenario No.:** 1	**Event No.:** 2
Event Description: Diesel Generator Jacket Cooling Water Temperature Low		

Time	**Position**	**Applicant's Action or Behavior**
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1 **Scenario No.:** 1 **Event No.:** 3

Event Description: Raise Reactor Power using Reactor Recirculation

Time	Position	Applicant's Action or Behavior
	CRS	Directs the ATC to increase reactor power using procedure 2.1.10, Station Power Changes (Section 6) 6.1 Step is N/A 6.2 Step is N/A 6.3 During initial power ascension following refueling outage and first sequence exchange in a cycle, maintain power ascension ramp rate ≤ 2% CTP/hr from 70% power up to rated power. 6.4 Raise power by raising RR pump flow as follows: 6.4.1 IF thermal power ≤ 2413 (or ≤ 2375 if power limited to 2381 MWt), THEN raise power by raising RR pump flow. 6.4.1.1 Maintain rate of power change consistent with system capabilities as determined by Load Dispatcher and TG limits. 6.4.2 Step is N/A.
NOTE to Lead Examiner: After the power rise is satisfied, continue with the next event prior to the completion of the power rise (RR pump runs back).		
	ATC	Increase reactor power using procedure 2.1.10, Station Power Changes (Section 6)
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1	**Scenario No.:** 1	**Event No.:** 4
Event Description: RR Pump A controller causes RR Pump A to run down in speed.		

Time	Position	Applicant's Action or Behavior
	Booth Operator	**When directed by the Lead Examiner Insert Trigger 2 (RR 17a) RR Pump A run back towards 55% speed.**
	ATC	Recognize RR Pump A lowering in speed. Press Scoop Tube Lockout. Respond to alarm 9-4-3/C-2, RRMG A SCOOP TUBE LOVKOUT.
	CRS	Enter Procedure 2.4RR, and assign actions to ATC.
	ATC	Enter 2.4RR, Attachment 4 1.1 Operate scoop tube locally per Procedure 2.2.68.1; or 1.2.1 Trip affected RRMG; or 1.2.2 Enter Procedure 2.1.5. 2. If RR pump tripped, THEN enter Attachment 1 3. Ensure requirements of SR 3.4.1.1 are met as soon as practical.
	CRS	If greater than 5% speed mismatch, Enter LCO 3.4.1 Condition B-Satisfy requirement of the LCO. Completion Time 24 hours.
NOTE to Examiners: If RR pump speeds vary more than 5%, the CRS may direct RR B speed lowered to match RR Speed A.		
	Booth Operator	**If directed to adjust RR A flow locally, use Remote Function RR05.**
		END OF EVENT
	Notes	

Op-Test No.: 1 **Scenario No.:** 1 **Event No.:** 4

Event Description: RR Pump A controller causes RR Pump A to run down in speed.

Time	Position	Applicant's Action or Behavior
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1	**Scenario No.:** 1	**Event No.:** 5
Event Description: SLC Tank outlet valve found closed.		

Time	Position	Applicant's Action or Behavior
	Booth Operator	**Upon direction from the lead examiner call the BOP Operator and inform him/her that you are the Reactor Building Non Licensed Operator and during your rounds you have found SLC-48, SLC Pump A Tank Outlet valve unlocked and Closed.**
	BOP	Receives a phone call from Reactor Building NLO that during rounds he has discovered SLC-48, SLC Pump A Tank Outlet valve unlocked and Closed. Informs the CRS of the issue.
	BOP	Instructs the Non Licensed Operator to Open the valve and perform a valve lineup for the entire SLC System.
	CRS	Enter Tech Spec 3.1.7 Standby Liquid Control System and determine SLC subsystem A is inoperable. Action A.1, Restore SLC subsystem to OPERABLE status within 7 days. Direct system lineup performed per 2.2.74 and SR 3.1.7.6.
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1 **Scenario No.:** 1 **Event No.:** 6

Event Description: H_2 Gas leak in Generator

Time	Position	Applicant's Action or Behavior
	Booth Operator	**At the direction of the lead examiner once 5% reactor power has been achieved, insert Trigger 1 (EG03) Generator Hydrogen leak.**
	BOP	Respond to annunciators: • B-2/B-4, GENERATOR HYDROGEN LOW PRESSURE.
	BOP	Inform the CRS that Hydrogen Pressure in the Main Generator is lowering and entry into 2.4GEN-H2 is required. Enters ABNORMAL PROCEDURE 2.4GEN-H2 GENERATOR OR HYDROGEN ABNORMAL 4.1 Record current time and date. 4.2 Concurrently refer to Attachment 4, ABNORMAL H_2 GAS PRESSURE OR H_2 LEAKAGE 4.3 Obtain Control Room Supervisor review/concurrence. Perform Attachment 4 as follows: 1. Make announcement for personnel to stay clear of Turbine Building due to potential hydrogen leak. 2. IF H_2 is leaking into Turbine Building, THEN direct a Non Licensed Operator to perform steps 2.1 through 2.3 3. **IF generator pressure < 30 psig, THEN inform the CRS and ATC the following is required:** 3.1 **IF Annunciator 9-5-2/C-4 is clear, THEN SCRAM and enter Procedure 2.1.5.** 3.2 Trip Main Turbine. 3.3 IF reactor was <u>not</u> scrammed, THEN enter Procedure 2.2.77. 4. Maintain Main Generator Capability Curve per Attachment 8 by

Op-Test No.: 1 **Scenario No.:** 1 **Event No.:** 6

Event Description: H_2 Gas leak in Generator

Time	Position	Applicant's Action or Behavior
		lowering power per Procedure 2.1.10 to reduce load.
	ATC	Update crew of ownership of Scram action parameter of 2.4GEN-H2.
	CRS	Direct the Actions of 2.4 GEN-H2, per attachment 4 as follows: Direct BOP Operator to • Update Crew at 5 psig increments as pressure lowers. • 45 psig - Generator capability limit shifts to 30 psig curve. Inform the Crew that: SCRAM is required when Generator H_2 pressure reaches < 30 psig. • Prepare to reduce power per Procedure 2.1.10 - rapid power reduction may be required. • Brief Procedure 2.1.5. • Assign Operator to continue Procedure 2.4GEN-H2 action post-Scram. • Discuss shutdown resources without Fire Brigade. • Request Operations support from Training or WCC. • Contact RP for H_2 monitoring in Turbine Building. • Make announcement for personnel to stay clear of Turbine Building. • Assign Operator to standby for isolating H_2. • Review Flammable and Other Hazard EALs for applicability.
	Booth Operator	**ROLE PLAY-If sent to check H_2-PI-13 locally, report pressure is 135 psig.** **If sent to check H_2-PI-14 (near vacuum priming tank) report hydrogen pressure as 50 psig.** **If directed to close H_2-106 and H_2-108 in the Hydrogen House, wait 3 minutes and report the valves are closed.**
		END OF EVENT
	Notes	

Op-Test No.: 1	**Scenario No.:** 1	**Event No.:** 6
Event Description: H_2 Gas leak in Generator		

Time	**Position**	**Applicant's Action or Behavior**
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1	**Scenario No.:** 1	**Event No.:** 7
Event Description: Reduce power using Recirculation Pump Flow in preparation for removing generator from service.		

Time	Position	Applicant's Action or Behavior
	CRS	Direct ATC to reduce power in preparation for removing the Main Generator from service.
	ATC	Refers to procedure 2.1.10, Station Power Changes, Attachment 2 Rapid Power Reduction 1.1 Place OWC INJECTION SYS ENABLE switch to SHUTDOWN (Panel A). 1.2 While monitoring rod line and feedwater flow, reduce core flow to $40x10^6$ lbs/hr using Reactor Recirculation. 1.3 Before rod line exceeds 118.0%, go to Section 9. 1.4 WHEN core flow is ~ $40x10^6$ lbs/hr, THEN go to Section 9, and perform remaining applicable steps of rapid power reduction. 9.5 Reduce rod line to < 70% by performing the following: 9.5.1 Insert Emergency Power Reduction Rods per Procedure 10.13. 9.5.2 WHEN feedwater flow is 4.5 X 10^6 to $8.5x10^6$ lbs/hr, THEN secure one RFP by performing following: 9.5.2.1 At any RVLC/RFPT HMI on the RFPT-1A(1B) MAIN CONTROL screen, place RFPT controller to be removed from service in MDEM. 9.5.2.2 Slowly lower speed of RFPT being removed from service using UP/DOWN arrows on RFPT-1A(1B) controller. 9.5.2.3 Check speed of operating RFPT rises to maintain RPV level. 9.5.2.4 Ensure minimum flow valve for RFP being removed from service opens. 9.5.2.4.1 RFP A - RF-FCV-11A, MINIMUM FLOW.

Op-Test No.: 1 **Scenario No.:** 1 **Event No.:** 7

Event Description: Reduce power using Recirculation Pump Flow in preparation for removing generator from service.

Time	Position	Applicant's Action or Behavior
		9.5.2.4.2 RFP B - RF-FCV-11B, MINIMUM FLOW. 9.5.2.5 WHEN discharge pressure for RFPT being removed from service is less than RPV pressure, THEN press RFPT A(B) TURBINE TRIP button (Panel A) and check RFPT A(B) speed drops. 9.5.2.6 At Panel A, close RF-MO-29(30), RFP A(B) DISCHARGE VLV. 9.5.2.7 As time permits, secure RFPT being removed from service per Procedure 2.2.28. 9.6 WHEN rod line ≤ 70%, THEN reduce core flow to minimum using Reactor Recirculation. 9.7 IF further power reduction is necessary, THEN enter Procedure 2.1.5.
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1	**Scenario No.:** 1	**Event No.:** 8
Event Description: Unit SCRAM due to low Generator Hydrogen pressure.		

Time	Position	Applicant's Action or Behavior
	CRS	Directs ATC to perform actions 2.1.5 and enters EOP1A
	Critical Task	**SCRAM Reactor prior to Generator Hydrogen pressure lowering to 25 psig.**
	ATC	Perform Attachment 1 mitigating task scram actions of 2.1.5 as follows: 1. MITIGATING TASK SCRAM ACTIONS 1.1 Press both RX SCRAM buttons. 1.2 Place REACTOR MODE switch to REFUEL. 1.3 IF reactor power > 3%, THEN perform following: 1.3.1 Place REACTOR MODE switch to SHUTDOWN. 1.3.2 Initiate ARI.
	ATC	Perform Attachment 2 Reactor Power Control of 2.1.5 as follows: 1 REACTOR POWER CONTROL 1.1 Ensure REACTOR MODE switch is in SHUTDOWN. 1.2 Verify <u>all</u> SDV vent and drain valves are closed. **<u>NOTE</u> –** RR pump(s) will be tripped if on Normal Transformer or if ARI/RPT has automatically initiated. 1.3 Ensure operating RR pumps have run back to 22% speed. **<u>NOTE</u> –** Steps 1.4 and 1.5 may be performed concurrently. 1.4 Verify all control rods are fully inserted.

Op-Test No.: 1 **Scenario No.:** 1 **Event No.:** 8

Event Description: Unit SCRAM due to low Generator Hydrogen pressure.

Time	Position	Applicant's Action or Behavior
		1.4.1 If necessary, insert control rods as directed by CRS. 1.5 Observe nuclear instrumentation and perform following: 1.5.1 Insert SRM detectors. 1.5.2 Insert IRM detectors. 1.5.3 Change APRM recorders to IRMs. 1.5.4 Range IRMs on scale. Check reactor power is lowering
	ATC	Reports NOT all rods inserted during performance of 1.4 of 2.1.5. 15 rods did not fully insert.
	CRS	Enters EOP1A and exits at step RC3 when all rods are NOT inserted and power is less than 3%. Enters EOP6A and 7A ATWS
	CREW	Update crew of PCIS Group 2 isolation.
		END OF EVENT
	Notes	
	Proceed to the next event ATWS.	

Op-Test No.: 1 **Scenario No.:** 1 **Event No.:** 9

Event Description: ATWS

Time	Position	Applicant's Action or Behavior
	CRS	Direct ATC to reset the reactor scram and ARI and insert control rods per Procedure 5.8.3, Alternate Rod Insertion.
	ATC	Insert Control Rods per 5.8.3. 4. ALTERNATE ROD INSERTION 4.1 Perform Attachment 1, Alternate Rod Insertion Methods Flowchart, using the 11" x 17" color-enhanced flowcharts provided in the Control Room. 4.2 Under ATWS conditions, control rod insertions should start in the center of the core, or for partial ATWS conditions, the center of the region with lowest control rod density, and proceed to every other control rod in an outward spiral pattern. All control rods should be fully inserted, starting from their post ATWS notch position, in a continuous fashion to the fully inserted position.
	Critical Task	**Maintain RPV Steam Dome pressure < 1337 psig.**
	BOP	Maintain Reactor Pressure Stabilize RPV pressure below 1050 psig using main turbine BPVs and RPV Pressure Control Systems (TABLE 12) as necessary per step FS/P-5 of EOP 6A. Table 12 RPV PRESSURE CONTROL SYSTEMS EOP 5.8.12 o HPCI with suction from ECST if available (defeat high area temperature isolation interlocks and high suppression pool water level suction transfer logic if necessary) o RCIC with suction from ECST if available (defeat low RPV pressure, high RPV water level, high exhaust pressure, and high area temperature isolation interlocks if necessary) o RFPT A o RFPT B o Main steam line drains o SRVs only with PC water level above 6 ft (restore IA/N2 supply if necessary) o IF continuous IA/N2 supply to SRV accumulators becomes

Op-Test No.: 1 **Scenario No.:** 1 **Event No.:** 9

Event Description: ATWS

Time	Position	Applicant's Action or Behavior
		unavailable: ○ THEN perform following: • Pressure stabilization (FS/P-5): 1. Place each SRV control switch in AUTO 2. Prevent Low-Low Set actuation ○ Depressurization (FS/P-8 and FS/P-10): 1. Depressurize with sustained SRV opening ○ RWCU in blowdown mode (only if no boron has been injected into RPV) ○ AOG 3rd stage air ejector and preheater ○ Gland sealing steam ○ Steam jet air ejectors ○ RWCU with filters bypassed (defeat isolation interlocks if necessary) • SRVs from ADS only with PC water level above 6 ft (restore IA/N2 supply if necessary)
	CRS	Direct BOP to inhibit ADS.
	BOP	Perform actions for RPV Level Control EOP7A 1. Inhibit ADS (FS/L-3) 2. IF any main steam line is not isolated THEN start defeating low RPV water level interlocks if necessary, EOP 5.8.20 3. Is reactor power above 3% or cannot be determined (FS/L-4) 4. FS/L5, 6, 7, and 8 NA 5. FS/L9 Maintain RPV water level between -183 in. and +54 in. using Outside Shroud Injection Systems (TABLE 13)
	ATC	Upon insertion of all control rods inform the CRS and continue in 2.1.5 post scram activities.

Op-Test No.: 1 **Scenario No.:** 1 **Event No.:** 9

Event Description: ATWS

Time	Position	Applicant's Action or Behavior
	CRS	Exit EOPs 6A and 7A and re-enter EOP 1A
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1	**Scenario No.:** 1	**Event No.:** 10
Event Description: Loss of 125V DC Panel AA-3		

Time	Position	Applicant's Action or Behavior
	Booth Operator	**ROLE PLAY: When directed by the Lead Examiner insert Trigger 3 (Loss of 125V DC AA-3).**
	ATC	Respond to alarm 9-5-2/E-3, ARI & ATWS RPT LOGIC POWER FAILURE. Determine loss of Panel AA-3.
	CRS	Enter 5.3DC125, LOSS OF 125 VDC Assign actions to BOP.
	BOP	Per 5.3DC125 1.1 Ensure RR Pump A drive motor breaker has tripped. (Pump tripped on scram). 1.3 Secure SAC 1A 1.4 If CRD Pump A running direct building operator to trip 480V breaker.
	Booth Operator	**If directed to trip SAC 1A, insert RF IA14 to STOP.** **If directed to open breaker for SAC 1A, insert RF IA07 to TRIP.** **If directed to start SAC 1B insert RF IA15 to START.**
NOTE : Performance of SR 3.8.1.1 is not required for up to one hour and may not be started immediately		
		END OF EVENT
	Notes	

Op-Test No.: 1	**Scenario No.:** 1	**Event No.:** 10
Event Description: Loss of 125V DC Panel AA-3		

Time	**Position**	**Applicant's Action or Behavior**
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1	**Scenario No.:** 1	**Event No.:** 11
Event Description: FW Line B Break Inside the Drywell		

Time	Position	Applicant's Action or Behavior
	Booth Operator	**When directed by lead examiner, activate trigger 5 (FW leak line break inside primary containment and RCIC flow controller failure).**
	CRS	Direct the actions of 2.4MC-RF, CONDENSATE AND FEEDWATER ABNORMAL Determine that the "B" Feedwater line has failed and RCIC will need to be used to restore Reactor Water Level. Enter EOP 3A, Primary Containment Control and direct actions. Direct Drywell FCUs placed in OVERRIDE.
NOTE to Examiners:		RCIC injects into feedwater Line A. HPCI injects into feedwater Line B. (Failure is in FW line B)
	ATC	Places Drywell FCUs in OVERRIDE as directed. Perform the actions of 2.4MC-RF, CONDENSATE AND FEEDWATER ABNORMAL as follows: 4.1 If system piping <u>not</u> intact, perform following: 4.4.1 If break is in Turbine Building, concurrently enter Procedure 5.1BREAK. 4.4.2 If break is endangering personnel or equipment necessary for safe operation: 4.4.2.1 Concurrently enter Procedure 2.1.5. 4.4.2.2 Ensure RFPs tripped. 4.4.2.3 Ensure RFP discharge valves closed. 4.4.2.4 At a RFPT/RVLC HMI, perform following: 4.4.2.4.1 Select RFPT-1A or RFPT-1B

Op-Test No.: 1 **Scenario No.:** 1 **Event No.:** 11

Event Description: FW Line B Break Inside the Drywell

Time	Position	Applicant's Action or Behavior
		System. 4.4.2.4.2 Select STARTUP VALVE screen. 4.4.2.4.3 Press EMER CLOSE button. 4.4.2.4.4 Confirm pop-up screen. 4.4.2.5 Ensure condensate booster pumps tripped. 4.4.2.6 If necessary, trip condensate pumps. 4.4.3 Notify Plant personnel to stay clear of affected area via gaitronics.
	CREW	Determine feedwater leak in FW Line B.
	BOP	Secure HPCI per the Hard Card.
	CREW	Update Group 6 isolation.
	BOP	Take drywell pressure as critical parameter and make periodic updates to the crew as it rises.
	Critical Task	**Initiate Drywell spray before drywell temperature exceeds the PSP Limit.**
	CRS	Direct transfer of reactor level control from Condensate/Feedwater to RCIC.
NOTE to Examiners: See Event 12 for operator actions in response to RCIC flow controller failure.		
	BOP	When RFPs/condensate booster pumps are tripped, use RCIC per Procedure 2.2.67.1 to maintain RPV level.
	BOP	Monitor and control PC pressure below 1.84 psig using containment pressure control systems, EOP 5.8.17 (PC/P-1). Before torus pressure reaches 10 psig Spray Torus (PC/P-2).

Op-Test No.: 1 **Scenario No.:** 1 **Event No.:** 11

Event Description: FW Line B Break Inside the Drywell

Time	Position	Applicant's Action or Behavior
		When torus pressure exceeds 10 psig Spray the Drywell (PC/P-3) maintain drywell pressure between +2 - +10 psig. Monitor average drywell temperature, EOP 5.8.10, and control below 150°F using available drywell cooling (DW/T-1). When average drywell temperature cannot be maintained below 150°F, Operate all available drywell cooling (defeat isolation interlocks if necessary (DW/T-2). Before average drywell temperature reaches 280°F Spray the Drywell (DW/T-4). Monitor and control torus water level between +2 in. and -2 in. (refer to SOP 2.2.69.3 prior to discharging water) (SP/L-1). Monitor average torus water temperature, EOP 5.8.9, and control below 95°F using available suppression pool cooling (SP/T-1).
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1	**Scenario No.:** 1	**Event No.:** 12
Event Description: RCIC Controller Fails Downscale in AUTO		

Time	Position	Applicant's Action or Behavior
	BOP	Operator recognizes RCIC Flow is less than AUTO setpoint value.
NOTE to Examiners: RCIC manual control requires the potentiometer know to be rotated many times before RCIC speed rises. Note Speed V output on controller reaching approximately 80 before RCIC responds.		
	BOP	Places RCIC Controller in MANUAL and restores system flow to 400 gpm using procedure 2.2.67, REACTOR CORE ISOLATION COOLING SYSTEM, Attachment 1. Restores reactor water level to normal range.
	BOP	Informs CRS of failure of the RCIC Controller
	CRS	Acknowledges manual control of RCIC.
		END OF EVENT
	Notes	
	When scram has been inserted and RPV level is within band, stop the scenario as directed by the lead examiner.	
	END OF SCENARIO	

Simulator Setup

Initialize the simulator in IC 16 (BOL) **(Protected IC 231)**

Triggers and Malfunctions

E1 – EG03 at 1.5% with 4.5 minute ramp.(Event 4)
E2 – RR17a 55% with 2 minute ramp (Event 3)
E3 – ED19C Loss of 125v DC Panel AA-3 (Event 9)
E4 – None
E5 – FW18b, 30% severity on a 3:30 ramp rate,
RC04at 0%,
MS02b, 12% on a 3:30 ramp rate and 5:00 time delay.
E6 – None
E7 – Ia15 Station Air Compressor local start.
E8 – None
E9– None
E10– None

RD15, Failure of control rods to scram-Active (15 control rods 02-27, 06-15, 14-31, 18-27, 22-07, 22-39, 30-15, 30-23, 30-47, 34-11, 34-43, 38-15, 38-31, and 46-39)

Overrides

None

Panel Set-up

- Mark Tendamatic plaque on Board B with A-B-C
- Ensure PMIS IDTs are blank.
- Place the Startup BOL Rod Sequence Book on Panel 9-5.
- Remove “D” Circulating Water Pump from service.
- Ensure Station Air Compressor A running and B secured.

Procedures Needed

- Copy of 2.2.3 Circulating water System marked up to step 5.5, and indicate section 9 “Backwash” has been completed.

Tags Hung

None

Parameter Monitoring:
Monitor RPV Pressure, Average Power Range Monitors and Power to Flow Map

Turnover Sheet:

Plant Status: The plant is operating at approximately 85% at the beginning of the current fuel cycle. Plant startup is to continue to 100 %. Surveillance 6.SLC.101, SLC Pump Operability Test was performed last shift.

Risk: Green

Activities in Progress:

- Preparation for Startup of D Circulating Water Pump to support startup. Procedure 2.2.3 is completed through step 5.5, and backwash is complete per section 9.0.
- Power raise in accordance with procedure 2.1.10, Power Changes, using RR Pumps.

LCOs in effect: None

Equipment out of service: None.

Activities for the Shift:

- Place D CWP in service to support continued startup.
- Continue raising power using Recirculation flow.

Facility: Cooper Nuclear Station Scenario No.: 2 Op-Test No.: 1

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: 100% power, EOL, no equipment out of service,

Turnover: Reduce power to 90% for HPCI Test. Following HPCI Test return to 100% power. 6.HPCI.103 completed to Step 4.13.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N, R (ATC)	Reduce Power with Reactor Recirculation (2.1.10)
2	SW04	C (BOP) TS (SRO)	RHRSW Pump trips. (2.2.70) The SRO addresses Tech Spec 3.7.1 Condition A for one pump INOP
3	N/A	N (BOP)	Place RHR Loop B in Suppression Pool Cooling (2.2.69.3)
4	HP12	N (BOP) TS (SRO)	Perform HPCI Full Flow Test (6.HPCI.103) Enters Tech Spec 3.5.1C and declares HPCI INOP
5	IA05	C (BOP)	Instrument Air dryer plugs. (Abnormal Procedure 5.2AIR)
6	RR50A RR10A, RR11A	C (ATC) C (ATC)	Reactor Recirculation Pump high Vibration (ARP) Recirculation Pump Seal Failure (ARP) (Abnormal Procedure 2.4RR and 2.4PC)
7	RR31A RP12	M © (All) C (ATC)	LOCA – RR Suction Line Break (EOP 1A, 3A) PCIS Group 3 isolation failure (2.1.22)
8	RD01	C © (ATC)	Scram Discharge Volume Drain Vlv. Fails to close.
9	O/R	I © (BOP)	RHR Loop A Drywell Spray Valves de-energize.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (T)echnical Specifications, (©) CT

Initial Conditions: 100% power, EOL, HPCI INOP for testing.

Turnover:

Reduce power to 90% for HPCI Test. Following HPCI Test return to 100% power. 6.HPCI.103 completed to step 4.13

Description:

The ATC reduces reactor power using reactor recirculation flow to 90% reactor power in preparation for the HPCI Full Flow Test per 2.1.10 Station Power Changes.

The B RHRSW Pump trips when B loop of RHRSW is placed in service to support Suppression Pool Cooling, and the other pump in the loop is started per 2.2.70. RHR Service Water Booster Pump System. The CRS addresses Tech Spec LCO 3.7.1 and declares the tripped pump inoperable.

The BOP Operator places B Loop of RHR in Suppression Pool Cooling operation to support the HPCI Full Flow Test per 2.2.69.3, RHR Suppression Pool Cooing and Containment Spray and 2.2.70, RHR Service Water Booster Pump System.

The BOP Operator performs the HPCI Full Flow Test per 6.HPCI.103. At step 4.16 the test fails and the SRO addresses Tech Spec 3.5.1C and declares HPCI INOP.

The instrument air dryer fully plugs requiring the filter/dryer bypassed from the control room until the other filter/dryer can be placed in service.

The ATC responds to high vibration on the “A” Reactor Recirculation Pump per ARP 9-4-3/C-3 and begins to reduce recirculation pump speed to reduce vibrations. The vibration continues and the Recirculation Pump seals fail resulting in a LOCA inside the Drywell. When the Recirculation Pump Trips the Suction Line breaks. The SRO enters EOP 1A and directs the ATC to SCRAM the reactor then enters EOP 3A to address containment pressure issues.

During the SCRAM recovery one of the SDV drain valves fails to close resulting in a primary system leaking into secondary containment. The ATC recognizes this and closes the valve using the control switch on Panel 9-5 and reports action to SRO.

Post scram, the PCIS Group 3 (RWCU) isolation fails and the ATC closes the valves and reports the failure to the CRS.

The SRO directs the BOP operator to secure Drywell Sprays at approximately 2 psig per EOP 3A, and if the operator fails to control drywell pressure the valves will NOT close resulting in a negative pressure in primary containment.

The scenario ends when the primary containment pressure is being controlled in band (+2 to +10 psig) as directed by the SRO and Reactor water level is in the normal range.

Op-Test No.: 1	**Scenario No.:** 2	**Event No.:** 1
Event Description: Reduce Power with Reactor Recirculation (Procedure 2.1.10)		

Time	**Position**	**Applicant's Action or Behavior**
	CRS	Conducts Reactivity Briefing. Notifies Shift Manager and Load Dispatcher of power reduction for HPCI testing.
	CRS	Directs ATC to lower reactor power to 90% per 2.1.10.
NOTE to Examiners: CRS may direct BOP to place RHR in Suppression Pool Cooling at the same time the direction is given to reduce reactor power.		
	ATC	Procedure 2.1.10 Station power changes, Section 7 RR FLOW.
NOTE to Examiners: RR pump flows can be read on recorder RR-FR-163 on VBd 9-4.		
	ATC	7.4 Lower power by lowering RR pump flow. Maintain rate of power change consistent with system capabilities as determined by Load Dispatcher and TG limits. Monitors reactor power, level, and power-to-flow map. Reports power lowered to 90% to SRO.
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1	**Scenario No.:** 2	**Event No.:** 2
Event Description: RHRSWBP trips		
Time	**Position**	**Applicant's Action or Behavior**
NOTE to Examiners: SWB Pump B or D will trip shortly after starting.		
	Booth Operator	**Allow the RHRSWBP to run for a couple of seconds before tripping the first one started. Insert Trigger 10 for SWBP B or Trigger 11 for SWBP D.**
	BOP	Place RHRSW system B in service per 2.2.70 5.2.1 Place and hold SWBP B or D switch to START until pump starts. 5.2.2 At Panel 9-3, check SWBP B or D AMPS are normal. 5.2.3 At Panel 9-3, check SW-MO-89B, HX-B SW DISCH VLV, opens. Respond to alarm 9-3-3/C-1 (Pump B) or 9-3-3/D-1 (Pump D). 2.3 Start SWBP B(D), as required, per Procedure 2.2.70. Respond to alarm 9-3-3/A-1 (Pump B) or 9-3-3/B-1 (Pump D). 2.3 Start SWBP B(D), as required, per Procedure 2.2.70.
	CRS	Direct BOP to place RHRSW system A in service per 2.2.70.
	CRS	Refers to Tech Spec 3.7.1 Condition A, One RHRSWB Pump inoperable. Action A.1 Restore RHR suppression pool cooling subsystem to OPERABLE status. Time 30 Days to restore
	BOP	5.2.1 Place and hold SWBP B or D switch to START until pump starts. 5.2.2 At Panel 9-3, check SWBP B or D AMPS are normal. 5.2.3 At Panel 9-3, check SW-MO-89B, HX-B SW DISCH VLV, opens. 5.1.4.1 Flow on SW-FI-132B, SW FLOW, between 2500 and 4000 gpm. 5.1.4.2 SWBP B or D AMPS $\leq$ 136 amps. 5.1.5 Ensure differential pressure on SW-DPI-359B, RHR HX B SW SIDE DIVIDER PLATE DIFFERENTIAL PRESSURE (R-903-B RHR HX

Op-Test No.: 1		**Scenario No.:** 2 **Event No.:** 2
Event Description: RHRSWBP trips		
Time	**Position**	**Applicant's Action or Behavior**
		Room), ≤ 17.0 psid. 5.1.5.1 Record SW-DPI-359B ΔP (R-903-B RHR HX Room) in Narrative Logs
	Booth Operator	**When requested as NLO to report differential pressure at step 5.2.5 of SW 2.2.70, respond it indicates 5 psid. (≤17 psid is procedurally acceptable)**
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1	**Scenario No.:** 2	**Event No.:** 3
Event Description: Place RHR Loop B in Suppression Pool Cooling (Procedure 2.2.69.3)		

Time	Position	Applicant's Action or Behavior
	CRS	Directs BOP to place RHR Loop B in Suppression Pool Cooling per 2.2.69.3.
	Booth Operator	**ROLE PLAY: When contacted, report suction line drain flush for hot spots is not required.**
	BOP	Contact ALARA to determine if suction line drain flush for hot spots is needed. Ensure RHR Subsystem B in Standby Status per Procedure 2.2.69. Notify Radiation Protection of RHR startup. IF RHR Subsystem B is being placed in suppression pool cooling to support non-emergency evolutions, THEN perform Section 3 concurrent with this section. 3.1.2 Initiate 6.LOG.601 Torus Average Temperature and Drywell Bulk Average Temperature Log Attachment for testing which adds heat to the suppression pool.
NOTE to Examiners: Annunciator 9-3-1/G-1, ADS AUX COOLING INTERLOCK, in an expected alarm when starting an RHR pump.		
	BOP	Initiate Suppression Pool Cooling: 8.23 Open RHR-MO-39B, SUPPR POOL COOLING/TORUS SPRAY VLV 8.25 Start RHR Pump B or D. 8.26 Throttle open RHR-MO-34B, SUPPR POOL COOLING INBD THROTTLE VLV, to obtain rated cooling flow or as directed by Control Room Supervisor 8.27 Ensure RHR-MO-16B (min flow valve) closed. 8.28 Perform one of the following: 8.28.1 Close CM-38, LOOP B INJECTION LINE PRESSURE MAINTENANCE SHUTOFF (R-958-SW). 8.28.2 Maintain RHR Subsystem B pressure greater than

Op-Test No.: 1		**Scenario No.:** 2 **Event No.:** 3
Event Description: Place RHR Loop B in Suppression Pool Cooling (Procedure 2.2.69.3)		
Time	**Position**	**Applicant's Action or Behavior**
		Condensate Transfer System pressure to prevent filling Torus. 8.29 Throttle closed RHR-MO66B, HX BYPASS VLV, to obtain desired cooling rate.
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1		**Scenario No.:** 2 **Event No.:** 4
Event Description: Perform HPCI Full Flow Test (Procedure 6.HPCI.103)		
Time	**Position**	**Applicant's Action or Behavior**
NOTE to Examiners: The HPCI Aux Oil Pump discharge line rupture is passive until the pump is started.		
	CRS	Directs performance of 6.HPCI.103
	Both Operator	**ROLE PLAY: When requested to establish communications, respond that you are setup and ready to begin 6.HPCI.103 at step 4.16.** **Wait 2 minutes and report oil pressures were recorded.**
	BOP	Reviews procedure 6.HPCI.103 in preparation for continuing surveillance. Establish Communications with local Operator in HPCI room. Begins at step 4.13 4.13 Informs CRS that HPCI System is inoperable for testing. 4.14 Step already completed 4.15 Step already completed 4.16 (Time) Start AUXILIARY OIL PUMP and time STOP VALVE opening stroke time
	Booth Operator	**ROLE PLAY-After HPCI AOP is started and Trigger 13 becomes active, call the control room and report a large lube oil leak on the AOP discharge piping.**
	CRS	Halt the HPCI surveillance.
	CRS	Refers to Tech Spec 3.5.1 Condition C and declares HPCI INOP. Action C.1 Verify by administrative means RCIC System is OPERABLE within one hour AND C.2 Restore HPCI System to OPERABLE status within 14 days.

Op-Test No.: 1	**Scenario No.:** 2	**Event No.:** 4
Event Description: Perform HPCI Full Flow Test (Procedure 6.HPCI.103)		

Time	**Position**	**Applicant's Action or Behavior**
	BOP	Place HPCI AOP control switch to Pull-To-Lock.
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1	**Scenario No.:** 2	**Event No.:** 5
Event Description: Instrument Air dryer plugs		

Time	Position	Applicant's Action or Behavior
	Booth Operator	**When directed by the Lead Examiner, Insert Trigger 2 (IA05, Instrument Air dryer plugging)**
	BOP	Respond to alarm A-4/A-5, CONTRL AIR LOW PRESSURE. 1.1 Verify SACs operating properly. 1.2 Check for excessive air leaks or usage. 1.3 Enter Procedure 5.2AIR Report Instrument air pressure from IA-PI-606 (Panel A) Report Service air pressure from SA-PI-611. Report Service air pressure high and instrument air pressure low.
	CRS	Enter Abnormal Procedure 5.2AIR. Assign actions to BOP.
	BOP	4.3 If air drying/filtering components at fault then perform following: 4.3.1 Open SA-MO-81, SA TO IA CROSSTIE (Panel A) 4.3.2 Place standby dryer and filters in service per Procedure 2.2.59. 4.3.3 If necessary, manually bypass any obstructed component(s). 4.3.4 When dryer and filter flow returned to service, close SA-MO-81. Contact building operator and direct other air dryer/filter placed in service.
	Booth Operator	**If directed to place other air dryer/filter in service, wait 5 minutes delete malfunction IA05, and report the other dryer/filter is in service.**
		END OF EVENT

Op-Test No.: 1	**Scenario No.:** 2	**Event No.:** 5
Event Description: Instrument Air dryer plugs		
Time	**Position**	**Applicant's Action or Behavior**
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1		**Scenario No.:** 2 **Event No.:** 6
Event Description: Reactor Recirculation Pump High Vibration (ARP 9-4-3/C-3) Recirculation Pump Seal Failure (ARP 9-4-3/A-3)		
Time	**Position**	**Applicant's Action or Behavior**
	Booth Operator	**When directed by lead examiner, insert Trigger 4 (RR10a, RR11a, RR50a RR31a, RR Pump A #1 and #2 seal failure, RR Motor A high vibration, and RR Loop A suction rupture)**
	ATC	Operator responds to annunciator, announces RR Pump A Hi vibration, and refers to ARP.
	CRS	SRO acknowledges announcement.
	ATC	ARP 9-4-3/C-3, RECIRC A PUMP MOTOR HI VIBRATION 1.1 Monitor RR A pump/motor vibration using PMIS Points. 1.2 NA 1.3 Notify System Engineer of valid alarms.
NOTE to Examiners: ATC may trip RR pump A before SRO directs it if a drywell pressure increase is noted with the seal trouble annunciator.		
	ATC	Respond to alarm 9-4-3/A-3, RECIRC PUMP A SEAL TROUBLE
	ATC	Operator responds to annunciator, announces alarm RR Pump A seal failures, and refers to ARP.
	CRS	Directs ATC to trip RR pump A and entry into 2.4RR.
	ATC	Trips RR pump A and enters 2.4RR. 4.3 Checks power-to-flow map for operating in the exclusion zone 4.4 Secure OWC Injection System, place OWC INJECTION SYS ENABLE SWITCH to SHUTDOWN (PANEL A). 4.5 Perform applicable Attachment 2, RECIRCULATION PUMP SEAL FAILURE Attachment 2 1. If both seals have failed and affected RR pump requires prompt

Op-Test No.: 1		**Scenario No.:** 2 **Event No.:** 6
Event Description: Reactor Recirculation Pump High Vibration (ARP 9-4-3/C-3) Recirculation Pump Seal Failure (ARP 9-4-3/A-3)		
Time	**Position**	**Applicant's Action or Behavior**
		isolation, perform following: 1.1 Ensure DRIVE MOTOR BKR 1CN, 1CS (1DN, 1DS) is tripped. 1.2 Close RR-MO-43A(B), PUMP SUCTION VLV. 1.3 Close RR-MO-53A(B), PUMP DISCHARGE VLV. 1.4 Close CRD-50 (CRD-51), REACTOR RECIRCULATION PUMP A (B) SEAL FLOW REGULATOR 46A (B) INLET (R-903-SE). 1.5 Following steps may be performed concurrently: 1.5.1 Enter Single Loop Operation section of Procedure 2.2.68.1. 1.5.2 Ensure RRMG Set A(B) GEN FIELD BKR open. 1.5.3 Ensure operating RRMG is transferred to Startup Transformer per Procedure 2.2.18. If both seals have degraded and time allows, shut down and isolate affected pump per Procedure 2.2.68.1.
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1		**Scenario No.:** 2 **Event No.:** 7
Event Description: LOCA – RR Suction Line Break (EOP 1A, 3A)		
Time	**Position**	**Applicant's Action or Behavior**
NOTE to Examiners: malfunction RR31A, 5%, RR Suction line leak is already ramping in (Active).		
	Crew	Respond to drywell pressure rise.
	CRS	Enter abnormal Procedure 2.4PC
	BOP	Enter 2.4PC and vent containment per the (Hard Card).
	ATC	Accept scram action of 1.5 psig drywell pressure.
	CRS	Direct ATC to SCRAM at 1.5 psig drywell pressure.
	CRS	Enters EOP 1A and 3A on high drywell pressure and directs actions.
	ATC	SCRAM or verify SCRAM per 2.1.5 1. MITIGATING TASK SCRAM ACTIONS 1.1 Press both RX SCRAM buttons. 1.2 Place REACTOR MODE switch to REFUEL. 1.3 IF reactor power > 3%, THEN perform following: 1.3.1 Place REACTOR MODE switch to SHUTDOWN. 1.3.2 Initiate ARI.
	ATC	Perform Attachment 2 Reactor Power Control of 2.1.5 as follows: 1 REACTOR POWER CONTROL

Op-Test No.: 1		**Scenario No.:** 2 **Event No.:** 7
Event Description: LOCA – RR Suction Line Break (EOP 1A, 3A)		
Time	**Position**	**Applicant's Action or Behavior**
		1.1 Ensure REACTOR MODE switch is in SHUTDOWN. 1.2 Verify all SDV vent and drain valves are closed. **NOTE –** RR pump(s) will be tripped if on Normal Transformer or if ARI/RPT has automatically initiated. 1.3 Ensure operating RR pumps have run back to 22% speed. **NOTE –** Steps 1.4 and 1.5 may be performed concurrently. 1.4 Verify all control rods are fully inserted. 1.4.1 If necessary, insert control rods as directed by CRS. 1.5 Observe nuclear instrumentation and perform following: 1.5.1 Insert SRM detectors. 1.5.2 Insert IRM detectors. 1.5.3 Change APRM recorders to IRMs. 1.5.4 Range IRMs on scale. Check reactor power is lowering.
	CREW	Recognize failure of PCIS Group 3 isolation.
	ATC	Close RWCU-MO-15 and MO-18. Throttle open MO-74
	BOP	EOP 1A RPV Control (RC/P-5) Stabilize RPV pressure below 1050 psig using main turbine BPVs and RPV Pressure Control Systems (TABLE 1) as necessary (RC/L-5)

Op-Test No.: 1 **Scenario No.:** 2 **Event No.:** 7

Event Description: LOCA – RR Suction Line Break (EOP 1A, 3A)

Time	Position	Applicant's Action or Behavior
		If ADS timer has initiated THEN inhibit ADS
Note to Examiners: Either Loop of RHR may be used for Torus Spray and Drywell Spray. Only A Loop of RHR may be used for Torus cooling.		
	Critical Task	Initiate Drywell Spray prior to Torus Pressure reaching 25 psig.
	CRS	Directs Containment Sprays initiated.
	BOP	(PC/P-1) Monitor and control PC pressure below 1.84 psig using containment pressure control systems, EOP 5.8.17 (PC/P-2) BEFORE torus pressure reaches 10 psig, Spray Torus (PC/P-3) When Torus pressure exceeds 10 PSIG Spray the Drywell 2. Containment Sprays (**RHR Hard Card**) 2.1 IF required, with CRS permission, THEN place CONTMT COOLING 2/3 CORE VALVE CONTROL PERMISSIVE switch to MANUAL OVERRD. 2.2 IF required, THEN place CONTMT COOLING VLV CONTROL PERMISSIVE switch to MANUAL. 2.3 Ensure RHR-MO-39A(B) open. 2.4 IF reactor pressure ≤ 300 psig and injection not desired, THEN close RHR-MO-27A(B), OUTBD INJECTION VLV. 2.5 Ensure RHR PUMP(s) running. NOTE – RHR pump operation at minimum flow should be limited to < 15 minutes or pump damage may result. 2.6 Throttle RHR-MO-38A(B) to maintain desired containment pressure. 2.7 Throttle RHR-MO-66A(B) to obtain desired cooling rate.

Op-Test No.: 1 **Scenario No.:** 2 **Event No.:** 7

Event Description: LOCA – RR Suction Line Break (EOP 1A, 3A)

Time	Position	Applicant's Action or Behavior
		2.8 IF Drywell Spray required, THEN perform following: 2.8.1 Open RHR-MO-31A(B). 2.8.2 Throttle RHR-MO-26A(B) to maintain desired containment pressure. 2.9 IF PCIS Group 6 lights lit on Panel 9-5, THEN ensure one of following open: 2.9.1 REC-MO-711; or 2.9.2 REC-MO-714. 2.10 Place RHR SW System in service: 2.10.1 Start SWBP(s). 2.10.2 Adjust SW-MO-89A(B) to maintain flow between 2500 and 4000 gpm. 2.11 Throttle RHR-MO-66A(B) to maintain desired cooling rate. Maintain Drywell pressure between +2 & +10 psig.
	ATC	EOP 1A RPV Control (RC/L-1) Ensure each of following initiated: • PCIS Group 1-7 isolations, SOP 2.1.22 • ECCS initiations • DGs (RC/L-3) Restore and maintain RPV water level between +3 in. and +54 in. with one or more Injection Systems (TABLE 3) (RC/L-4) When RPV water level cannot be restored and maintained between +3 in. and +54 in. (RC/L-6) Restore and maintain RPV water level above -150 in. using Injection Systems (TABLE 3) and, if necessary, Alternate Injection Subsystems

Op-Test No.: 1		**Scenario No.:** 2 **Event No.:** 7
Event Description: LOCA – RR Suction Line Break (EOP 1A, 3A)		
Time	**Position**	**Applicant's Action or Behavior**
		(TABLE 4)
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1		**Scenario No.:** 2 **Event No.:** 8
Event Description: Scram Discharge Volume Drain Valve Fails to close.		
Time	**Position**	**Applicant's Action or Behavior**
NOTE to Examiners: The SDIV drain valve (AO-33) on the south volume fails to isolate when required post scram.		
	Critical Task	**Isolate primary system discharging into secondary containment before any Max Safe Operating Limit is reached.**
	ATC	Recognizes that Scram Discharge Volume Drain valve failed to close while performing post scram actions of 2.1.5, Attachment 2, step 1.2 "verify all SDV vent and drain valves closed." s Informs CRS that SDV drain valve failed to close. Places SDV Isolation switch on Panel 9-5 to ISOL. Reports SDV drain valve closed.
	CRS	Recognizes this results in a primary system discharging into Secondary Containment until SCRAM is reset or valve is closed.
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1	**Scenario No.:** 2	**Event No.:** 9
Event Description: RHR Drywell Spray Valve fail to auto close on low DW pressure.		
Time	**Position**	**Applicant's Action or Behavior**
NOTE to Examiners: During performance of Drywell Sprays using procedure 2.2.69.3 during execution of EOP 3A if the operator fails to recognize DW Spray valves have lost power the valves will fail to close resulting in negative DW pressure and challenging PC Integrity.		
	Critical Task	**Secure RHR Loop A drywell sprays or lower Loop B sprays prior to Drywell Pressure reaching negative pressure.**
	Booth Operator	**As drywell pressure is lowered to ~5 psig, insert Trigger 5 to de-energize MO26A and MO-31A open.**
	BOP	Recognizes that RHR-MO-26A, DRYWELL SPRAY OUTBD THROTTLE VLV and RHR-MO-31A, DRYWELL SPRAY INBD VLV will not close while spraying the Drywell. If RHR Loop B also being used to spray the drywell, isolate drywell sprays in that loop to maintain drywell pressure above 2 psig. OR Secure all RHR Loop A pumps. Report status to the CRS
	CRS	Acknowledges and directs the drywell pressure maintained positive.
		When Drywell Pressure is being controlled and RPV level is within band, stop the scenario as directed by the lead examiner.
		END OF SCENARIO

Simulator Setup

Initialize the simulator in **Protected IC 232.**

Triggers and Malfunctions

E4 – RR10A, RR #1 seal failure, 100% severity with a 5:00 ramp time.
RR11A, RR #2 seal failure, 100% severity with a 15:00 ramp time.
RR31A, RR Suction Line Break, 3.5% severity with a 10:00 ramp time. 6 minute TD.
RR50A RR Pump A High Vibration, 50% severity.
E5 – RH23a and RH19a Loop A DW Spray Valves fail open.
E6 – None
E7 – None
E9– DMF RD01a (Allows SDIV drain valve to close)
E13– None
Trgset 9 "zdirpssws10[1]==1" (SDIV control switch to ISOL)
Trgset 13 "zdihpcisws20[4]==1" (HPCI Aux Oil Pump control switch to START)
RD01a, 100% (Open) South SDV Drain Valve Fails to Close (Active)
RP12 PCIS Group 3 failure (Active)
HP 12, HPCI oil discharge line rupture (15 second time delay) (Active)
IA05 100% with a 2 minute ramp.

Remotes

E5- rh19a, RHR-MO-26a control power failure
rh23a, RHR-MO-31a control power failure
E10- SW04b RHRSW Pump B trip.
E11- SW04d RHRSW Pump D trip.

Overrides

None

Panel Set-up

- Ensure HPCI Test displayed on SSSP.
- Ensure Tendamatic plaque labeled B-A-C
- Ensure PMIS IDTs are blank.
- Place the Shutdown EOL Rod Sequence Book on Panel 9-5.
- Ensure Recirculation Controllers are selected to ”P”

Procedures Needed

6.HPCI.103 – Completed up to step 4.13, then steps 4.14 and 4.15 are complete.

Tags Hung

None

Parameter Monitoring:

Monitor RPV Power, Pressure and Level, Drywell Pressure

Turnover Sheet:

Plant Status: 100% power, EOL

Risk: Green

Activities in Progress:

RHR Heat Exchanger B was vented at the end of the previous shift in preparation for performing HPCI surveillance test.
6.HPCI.103 – procedure completed up to step 4.13, steps 4.14 and 4.15 are complete.

LCOs in effect: None

Equipment out of service: None

Activities for the Shift:

- Reduce power to 90% for HPCI Test
- Place B Loop of RHR in Suppression Pool Cooling.
- Perform 6.HPCI.103 Test
- Return to 100% power following HPCI test

Appendix D **SCENARIO OUTLINE** **Form ES-D-1**

Facility: Cooper Nuclear Station Scenario No.: 3 Op-Test No.: 1

Examiners: _____ Operators: _____
_____ _____
_____ _____

Initial Conditions: 4%, BCL, power, plant startup in progress.

Turnover: Procedure 2.1.1, Steps 4.22 and 5.36 are completed, 2.2.77 Attachment 1, Step 1.14 is complete, 2.2.28.1 Step 5.14 is complete. Fuel is being de-channeled on the refueling floor, No Tech Specs Limitations in effect. Reactor Coolant samples (1xE-3 Micro-Curies / CC) indicate higher than normal gross activity level for this point in a startup. Site Management and Reactor Engineering have indicated the startup can continue normally. PRA risk is green. Continue plant startup.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N, R (ATC)	Continue startup using control rods
2	NM05A	C (ATC) TS (SRO)	IRM power supply failure (ARP 9-5-1/D-7) Tech Specs LCO 3.3.1.1, Reactor Protection System (RPS) Instrumentation
3	SW01d N/A	C (BOP) TS (SRO)	Service Water Pump D Trip (ARP B-3/B-7) Tech Spec LCO 3.7.2 Service Water (SW) System and Ultimate Heat Sink (UHS) for number of Operable SW Pumps.
4	RD03d N/A	C (ATC) TS (SRO)	Control Rod Drifts IN (2.4 CRD) Tech Spec LCO 3.1.5 for Inoperable Control Rod.
5	HP05,CR 01, CR03	I (BOP)	HPCI Inadvertent Initiation / Fuel Failure (2.4CSCS)
6	HP06, HP09, HP15	M (All) © R (ATC)	LOCA - Steam line break into Secondary Containment (EOP-5A, 2.4 OG, 5.1RAD) SCRAM (2.1.5)
7	N/A	M © (BOP)	Emergency Depressurization (>2 above Max Safe) EOP-2A
8	FW28B	C (ATC)	Reactor Feedpump fails to trip on high level
9	PC18a/b	I (BOP)	SGT Fans A & B fail to auto start

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (T)echnical Specifications, (©) CT

Initial Conditions: 4%, BCL, power, plant startup in progress.

Turnover:

Procedure 2.1.1, Steps 4.22 and 5.36 are completed, 2.2.77 Attachment 1, Step 1.14 is complete, 2.2.28.1 Step 5.14 is complete, LCOs and Logs are complete for change to MODE 1. Fuel is being de-channeled on the refueling floor, No Tech Specs Limitations in effect. Reactor Coolant samples (1xE-3 Micro-Curies / CC) indicate higher than normal gross activity level for this point in a startup. Site Management and Reactor Engineering have indicated the startup can continue normally. PRA risk is green. Continue plant startup.

Description:

A startup is in progress following a refueling outage. Reactor Power is approximately 4% and the intention is to raise power. Reactor Coolant activity is above normal. The ATC continues the plant startup using control rods using procedure 2.1.1, Startup and procedure 10.13, Control Rod Movement Sequence.

During control rod withdrawal, one IRM power supply fails requiring the ATC to bypass the IRM per ARP 9-5-1/D-7. The SRO addresses Tech Spec 3.3.1.1, Reactor Protection System (RPS) Instrumentation and declares IRM B inoperable. Potential LCO 3.3.1 is logged. The half reactor scram is reset per Procedure 2.1.5.

The BOP operator responds to a Service Water Pump Trip per ARP B-3/B-7 and responds by starting another pump.

The SRO addresses Tech Spec LCO 3.7.2 Service Water (SW) System and Ultimate Heat Sink (UHS) for number of Operable SW Pumps and determines 30 day LCO entry is required per 3.7.2 and 7 day LCO entry is required per 3.8.1 with DG-1 declared inop.

One Control Rod drifts in due to a leaking outlet scram valve and the ATC responds per 2.4CRD to fully insert the Control Rod using the emergency in switch. The control rod is fully inserted and the SRO enters Tech Spec 3.1.6 because GPWS is not met. The control rod is declared INOP and de-activated. The SRO addresses Tech Spec LCO 3.1.3 for Inoperable Control Rod.

An Inadvertent HPCI Actuation and Injection occurs resulting in a power excursion that results in some Fuel Failure. The BOP Operator responds per 2.4CSCS and secures HPCI. During the process of tripping HPCI the HPCI Steam line breaks in Secondary Containment. The SRO enters EOP 5A due to high Reactor Building temperature and radiation. EOP 5A provides direction to “isolate systems discharging into the area”

As area temperatures and radiation continue to rise the SRO directs the ATC to SCRAM the reactor per 2.1.5, prior to commencing emergency depressurization, due to the inability to isolate the HPCI steam line break and follows up by entering 5.1 RAD and 2.4 OG.

The crew will be able to anticipate emergency depressurization but will have to close the MSIVs due to MSL HI-HI RAD. Once two or more areas are above Max Safe the SRO will direct the BOP operator to Emergency Depressurize the Reactor per EOP 2A prior to exceeding 312^{o}F anywhere in the reactor building.

The SGT fans fail to auto start and the BOP operator must manually start them to prevent the secondary containment pressure from becoming positive and a potential radioactivity release.

During recovery of reactor water level using Feedwater the remaining Reactor Feedpump fails to trip on high level requiring the BOP operator to control RPV level using ECCS Systems.

The scenario ends when the RPV level has been restored to the normal range following emergency depressurization and the SGT system has restored negative pressure in the secondary containment.

Op-Test No.: 1	**Scenario No.:** 3	**Event No.:** 1
Event Description: Continue startup using control rods		

Time	**Position**	**Applicant's Action or Behavior**
	CRS	Performs a Reactivity Briefing Directs the ATC to continue startup.
NOTE to Examiners: Reactivity Briefing is normally conducted in briefing room during turnover prior to entering the simulator.		
	ATC	Continue to withdrawal rods using procedure 10.13 starting at step 4.2.1 - Proceed with consecutive step order on Attachment 5 in the Control Rod Sequence Package. 4.2.3 The Operator shall initial in the "PERFORMED BY" column on Attachment 5.
	BOP	4.2.2 The Operator or Concurrent Verifier shall place a check mark in the DESIRED ROD SELECTED block for the selected rod.Ⓟ[11] 4.2.3 The Operator shall initial in the "PERFORMED BY" column on Attachment 5. 4.2.4 The Concurrent Verifier shall initial in the "CONCURRENT VERIFICATION" column on Attachment 5.Ⓟ[11]
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1	**Scenario No.:** 3	**Event No.:** 2
Event Description: IRM power supply failure (ARP 9-5-1/D-7)		

Time	Position	Applicant's Action or Behavior
	Booth Operator	**When directed by the lead examiner insert Trigger 6 (NM05b IRM Power Supply Failure)**
	ATC	Respond to Annunciators 9-5-1/D-7, IRM RPS CH B UPSCALE TRIP OR INOP. 9-5-2/A-3, RX SCRAM CHANNEL B 9-5-2/b-1, NEUTRON MONITORING TRIP Refers to INSTRUMENT OPERATING PROCEDURE 4.1.2,INTERMEDIATE RANGE MONITORING SYSTEM Visually inspects the IRM B cabinet and recognizes the white INOP light is illuminated and the outputs are downscale indicating a power supply failure. Bypasses IRM B using joystick on panel 9-5 Verifies remaining IRMs indications have normal reading for the reactor power. Resets RPS B trip per Procedure 2.1.5, Section 4. 4. HALF SCRAM RESET 4.1 Place REACTOR SCRAM RESET switch to Group 1 and 4, Group 2 and 3, then back to NORM. 4.2 Ensure eight SCRAM GROUP lights (Panels 9-15 and 9-17) or SCRAM INDICATIONS GROUP A and GROUP B lights are on.
	Booth Operator	**If requested as I&C to investigate the IRM B power supply, respond that you will prepare a troubleshooting request and investigate.**
	CRS	Refers to TECH SPEC LCO 3.3.1.1, Reactor Protection System (RPS) Instrumentation. LCO 3.3.1.1, Table 3.3.1.1-1, Functions 1a and 1b. Declares IRM B Inop.

Op-Test No.: 1 **Scenario No.:** 3 **Event No.:** 2

Event Description: IRM power supply failure (ARP 9-5-1/D-7)

Time	Position	Applicant's Action or Behavior
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1 **Scenario No.:** 3 **Event No.:** 3

Event Description: Service Water Pump D Trip (ARP B-3/B-7)

Time	Position	Applicant's Action or Behavior
	Booth Operator	**When directed by lead examiner, insert Trigger 4 (Service Water Pump D Trip).**
	BOP	Responds to Annunciator B-3/B-7 Service Water Pump D Trip 1.2 Maintain SW System pressure >38psig 1.2.1 Place available non-running Service Water Pump in MAN. 1.2.2 Start available Service Water pump(s) as necessary. 1.3 Ensure MODE SELECTOR switches are aligned per procedure 2.2.71. Dispatch an Operator to investigate the pump trip.
	Booth Operator	**When asked to investigate the Service Water Pump D Trip, report the motor is very hot.** **If asked to investigate the local SW Pump 4160 V breaker, report the 51X overload/ground relay has tripped for the pump.**
	CRS	Refer to Tech Spec 3.7.2.A.1 Declare "D" Service Water Pump Inoperable. 30 Day LCO applies, and Refer to Tech Spec 3.8.1, declare the Diesel Generator 1 inoperable, with a seven day LCO.
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1 **Scenario No.:** 3 **Event No.:** 4

Event Description: Control Rod Drifts IN (2.4 CRD)

Tech Spec LCO 3.1.5 for Inoperable Control Rod.

Time	Position	Applicant's Action or Behavior
	Booth Operator	**When directed by the lead examiner, activate RD03d, Rod 18-39 Drift in (Trigger 1)**
	ATC	Respond to annunciator 9-5-1/C-4, ROD DRIFT. Determine that rod 18-39 is drifting inward. Verify no other rod drift indications.
	CRS	Enter 2.4CRD, Attachment 4, Single Rod Drift IN. Direct rod driven in with Emergency IN Switch. Contact the WCC for troubleshooting plan. Contact Reactor Engineering.
	ATC	Insert rod 18-39 using Emergency IN switch to full in.
	Booth Operator	**ROLE PLAY: As Reactor Engineer, when contacted by the CRS regarding the control rod drifting in, tell them if they determine the rod is INOP they can continue with the startup.** **ROLE PLAY: If contacted as the Work Control Center for the rod drifting in, tell them you will put a team together and develop a troubleshooting plan.**
	Booth Operator	**ROLE PLAY: When contacted by the control room as the NLO to isolate HCU 18-39, reply you will isolate the HCU and tag it.** **THEN: wait 5 minutes then delete malfunction RD03d.**
	CRS	Refer to Tech Spec 3.1.6 and determine Condition A applies. Refer to Tech Spec 3.1.3 and determine Condition C applies. Declare the Control Rod Inoperable and direct it to be deactivated.
	ATC	Call NLO and direct them to stop by the WCC to get a clearance and to isolate control rod 18-39 and tag it.

Op-Test No.: 1 **Scenario No.:** 3 **Event No.:** 4

Event Description: Control Rod Drifts IN (2.4 CRD)

Tech Spec LCO 3.1.5 for Inoperable Control Rod.

Time	Position	Applicant's Action or Behavior
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1 **Scenario No.:** 3 **Event No.:** 5

Event Description: HPCI Inadvertent Initiation / Fuel Failure (2.4CSCS)
Tech Spec 3.5.1, ECCS Operating

Time	Position	Applicant's Action or Behavior
	Booth Operator	**When directed by Lead Examiner, Insert Trigger 3 (HP05, HPCI Inadvertent Initiation and HP06 HPCI steam line break)**
	ATC	Check Reactor Level and Drywell pressure. Verify there are no valid start signals for HPCI.
	BOP	Respond to inadvertent initiation of HPCI using 2.4CSCS and 3.1 IF HPCI initiated, THEN perform following: 3.1.1 Ensure AUXILIARY OIL PUMP control switch in START. 3.1.2 Press and hold TURBINE TRIP button. 3.1.3 AFTER turbine stops, THEN place AUXILIARY OIL PUMP in PULL-TO-LOCK. 3.1.4 Release TURBINE TRIP button. Inform the CRS that HPCI is INOP.
	CRS	Direct HPCI tripped per 2.4CSCS If HPCI is not shutdown prior to annunciator 9-3-1/A-9 (Reactor Bldg High Rad) alarming then enter EOP5A due to high area radiation.
	CRS	Refers to Tech Spec 3.5.1, ECCS Operating, Action C requires verification of RCIC operable within one hour and determines Action C.2 applies requiring restoring HPCI to operability within 14 days.
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1 **Scenario No.:** 3 **Event No.:** 6

Event Description: LOCA - Steam line break into Secondary Containment

Time	Position	Applicant's Action or Behavior
NOTE to Examiners: Malfunctions HP09, and HP15 (HPCI failure to automatically isolate) and CR01 CR03 (fuel element failure) are ACTIVE.		
	CREW	Crew recognizes rising temperature and radiation levels in the reactor building and diagnose a break in the HPCI Steam Line.
	CRS	Enters EOP5A, direct actions as follows: Direct HPCI to be isolated. Rad Release Isolate all primary systems discharging into areas outside primary and secondary containments except systems required to support EOPs (RR-2) Before offsite gaseous radioactivity release rate reaches that which requires a General Emergency BUT ONLY IF primary system is discharging into area outside primary and secondary containments Emergency Depressurize the reactor (RR-3) Secondary Containment Control When Reactor Bldg. exhaust plenum radiation level exceeds 10 mr/hr ensure: • isolation of Rx Bldg. HVAC • initiation of SGT When Reactor Building HVAC isolates AND Rx Bldg. exhaust plenum radiation level is below 10 mr/hr, then restart Rx Bldg HVAC (defeat high drywell pressure and low RPV water level isolation interlocks if necessary, EOP 5.8.20) (SC-1) Monitor and Control TEMPERATURE, RADIATION, & WATER LEVEL BEFORE any secondary containment parameter reaches its maximum normal operating value: • Temperatures (TABLE 9) • Radiation (TABLE 10) • Water levels (TABLE 11) Isolate all primary systems discharging into areas outside primary and

Op-Test No.: 1 **Scenario No.:** 3 **Event No.:** 6

Event Description: LOCA - Steam line break into Secondary Containment

Time	Position	Applicant's Action or Behavior
		secondary containments except systems required to support EOPs (SC-10) BEFORE any secondary containment parameter reaches its maximum safe operating value: • Temperatures (TABLE 9) • Radiation (TABLE 10) • Water levels (TABLE 11) with a primary system discharging into secondary containment enter EOP 1A, SCRAM the reactor.
	BOP/ATC	Take action in EOP5A as follows: BEFORE any secondary containment parameter reaches its maximum safe operating value: • Temperatures (TABLE 9) • Radiation (TABLE 10) • Water levels (TABLE 11) 1. Start all reactor building quad room coolers. 2. Open REC cooling water supply (MO-711/714) to provide cooling to the quad room coolers. Respond to Annunciator 9-3-1/A-9 REACTOR BLDG HIGH RAD 1. Evacuate plant personnel from the area
	BOP	Attempt to isolate HPCI. Report to CRS that HPCI will not Isolate. Send NLO to ASD Room to Isolate HPCI.
	Booth Operator	**If sent to the ASD Room to attempt to isolate HPCI:** **Override Alarm 9-3-3/G-5 ASD ROOM DOOR OPEN to ON** **Then Override Alarm 9-3-3/F-5, ASD SWITCH POSITION ABNORMAL to ON** **Then report you can NOT get control of the valves from the ASD Room.** **DELETE the overrides on the alarms.**
	CRS	Enter 5.1RAD and 2.4OG on notification of High Reactor Bldg. Radiation. Direct actions. Enter EOP1A and direct a reactor Scram.
	Critical Task	**With a primary system discharging into secondary containment through an un-isolable break, SCRAM the reactor per EOP 5A and EOP 1A prior to commencing Emergency Depressurization.**

Op-Test No.: 1 **Scenario No.:** 3 **Event No.:** 6

Event Description: LOCA - Steam line break into Secondary Containment

Time	Position	Applicant's Action or Behavior
	ATC	Perform Scram actions using procedure 2.1.5 Attachment 1. Perform Attachment 1 mitigating task scram actions of 2.1.5 as follows: 1. MITIGATING TASK SCRAM ACTIONS 1.1 Press both RX SCRAM buttons. 1.2 Place REACTOR MODE switch to REFUEL. 1.3 IF reactor power > 3%, THEN perform following: 1.3.1 Place REACTOR MODE switch to SHUTDOWN. 1.3.2 Initiate ARI. Perform Attachment 2 Reactor Power Control of 2.1.5 as follows: 1 REACTOR POWER CONTROL 1.1 Ensure REACTOR MODE switch is in SHUTDOWN. 1.2 Verify <u>all</u> SDV vent and drain valves are closed. **<u>NOTE</u> –** RR pump(s) will be tripped if on Normal Transformer or if ARI/RPT has automatically initiated. 1.3 Ensure operating RR pumps have run back to 22% speed. **<u>NOTE</u> –** Steps 1.4 and 1.5 may be performed concurrently. 1.4 Verify all control rods are fully inserted. 1.4.1 If necessary, insert control rods as directed by CRS. 1.5 Observe nuclear instrumentation and perform following: 1.5.1 Insert SRM detectors. 1.5.2 Insert IRM detectors. 1.5.3 Change APRM recorders to IRMs.

Op-Test No.: 1 **Scenario No.:** 3 **Event No.:** 6

Event Description: LOCA - Steam line break into Secondary Containment

Time	Position	Applicant's Action or Behavior
		1.5.4 Range IRMs on scale. Check reactor power is lowering.
	BOP	Perform action of 5.1RAD, BUILDING RADIATION TROUBLE 4.2 Notify Plant personnel to clear affected area via gaitronics. Perform actions of 2.4OG, OFF-GAS ABNORMAL Verify automatic actions 2. AUTOMATIC ACTIONS 2.1 Standby off-gas dilution fan starts on low dilution flow. 2.2 A 5 minute time delay on low dilution flow or 15 minutes of continuous Alarm 9-4-1/C-4, OFFGAS TIMER INITIATED, causes an off-gas isolation signal. 2.3 An off-gas isolation signal causes following: 2.3.1 OG-AO-254, OG SYSTEM ISOLATION, closes. 2.3.2 AOG-AO-902, AOG RETURN, closes. NOTE – 50 to 60 psig on AR-12AV and OG-13AV air regulators indicates valves closed. 2.3.3 OG-AO-13, OFF-GAS FILTERS A & B DRAIN, closes. 2.3.4 AR-AO-12, 30 MINUTE HOLDUP PIPE DRAIN, closes. 2.3.5 OWC Injection System trips. 3. NA 4. Subsequent Actions: 4.1 Record date and time. 4.2 NA 4.3 IF off-gas isolation has occurred, THEN place OWC-SW-ENABLE, OWC INJECTION SYS ENABLE, to SHUTDOWN (PANEL A). 4.3.1 Complete securing OWC Injection System per Procedure 2.2.98 when conditions permit. 4.4 Concurrently perform Attachment 1, Off-Gas System High Radiation Attachment 1 1. OFF-GAS SYSTEM HIGH RADIATION:

Op-Test No.: 1 **Scenario No.:** 3 **Event No.:** 6

Event Description: LOCA - Steam line break into Secondary Containment

Time	Position	Applicant's Action or Behavior
		1.1 Lower reactor power per Procedure 2.1.10 to prevent off-gas timer from timing out or to clear Annunciator 9-4-1/C-4, OFFGAS TIMER INITIATED. 1.2 IF off-gas isolation is immediately desired, THEN at Panel 9-02, place OFFGAS TIMER switch to CLOSE. 1.3 IF fuel cladding has not been confirmed lost per EPIP 5.7.1, Emergency Classification, THEN request Chemistry obtain isotopic analysis of off-gas stream. 1.4 IF Off-Gas System automatically isolates or is manually isolated due to high-high radiation, THEN: 1.4.1 SCRAM and enter Procedure 2.1.5. 1.4.2 Close MSIVs and MSIV drains. 1.4.3 Ensure OFFGAS TIMER switch on Panel 9-02 is in CLOSE. 1.4.4 Ensure following valves are closed: 1.4.4.1 RHR-920MV, AOG STEAM SUPPLY VALVE (PNL 9-3). 1.4.4.2 RHR-1485MV, AOG STEAM BYP THROTTLE VLV (PNL 9-3). 1.4.4.3 RHR-921MV, AOG STEAM SUPPLY VALVE (PNL 9-3). 1.4.4.4 AOG-AO-902, AOG RETURN (VBD-K). 1.4.4.5 OG-AO-254, OFFGAS SYSTEM ISOLATION (VBD-K). 1.4.5 Remove SJAEs from service per Procedure 2.2.55. 1.4.6 Ensure gland steam exhauster running. 1.4.7 NA 1.4.8 NA 1.4.9 NA 1.4.10 Monitor ERP gas activity levels.
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1		**Scenario No.:** 3 **Event No.:** 7
Event Description: Emergency Depressurization (>2 above Max Safe) EOP-2A		
Time	**Position**	**Applicant's Action or Behavior**
NOTE to Examiners: This event is a continuation of the previous event.		
	CRS	Enter 5.2FUEL and direct actions as follows: 4.6 IF valid MAIN STM LINE HI HI RAD (9-4-1/A-4) alarm is actuated and reactor is shut down, THEN close MSIVs and MSL drain valves. 4.7 Direct Chemistry to sample reactor coolant activity. 4.8 Notify Reactor Engineering and follow their recommendations per Procedure 10.31.
	BOP	Close MSIVs and MSL Drains
	Critical Task	**With a primary system discharging into secondary containment through an un-isolable break, execute Emergency Depressurization when Maximum Safe Operating Values are exceeded in two or more areas for the same parameter per EOP2A prior to exceeding 312^0F anywhere in the reactor building.**
	CRS	EOP1A When CRS determines the second containment area temperature is going to exceed MAX SAFE temperature of 195°F, anticipate Emergency Depressurization and direct BOP to fully open main turbine bypass valves.
	BOP	When directed fully open main turbine bypass valves per Hard Card. (Panel B DEH HMI) 3. MANUAL BPV CONTROL 3.1 On BYPASS VALVE POSITION control, press OPEN to access controls. 3.2 Press MANUAL button and check it backlights yellow. 3.3 On BYPASS VALVE POSITION control, use UP/DOWN, JOG UP/JOG DOWN and FAST/SLOW controls to adjust BYPASS

Op-Test No.: 1 **Scenario No.:** 3 **Event No.:** 7

Event Description: Emergency Depressurization (>2 above Max Safe) EOP-2A

Time	Position	Applicant's Action or Behavior
		VALVE POSITION to desired value.
	CRS	EOP5A (SC-14) BEFORE any 2 secondary containment parameters reach their maximum safe operating value: • Temperatures (TABLE 9) • Radiation (TABLE 10) • Water levels (TABLE 11) with a primary system discharging into secondary containment Emergency Depressurize the reactor. EOP2A (RC/P-12) Rapidly depressurize RPV (disregard cooldown rate) (RC/P-13) NA (RC/P-14) WHEN shutdown cooling RPV pressure interlock clears (70 psig) AND further cooldown is required (RC/P-15) Cool down to cold shutdown conditions with shutdown cooling (use only RHR pumps not required to maintain RPV water level above +3 in.)
	CRS	Request torus water level before ordering SRVs opened for emergency depressurization.
	BOP	Report torus water level to CRS.
	BOP	Open 6SRVs with control switches. Report RPV pressure as it lowers.

Op-Test No.: 1 **Scenario No.:** 3 **Event No.:** 7

Event Description: Emergency Depressurization (>2 above Max Safe) EOP-2A

Time	Position	Applicant's Action or Behavior
	BOP	Restore RPV Level using Low Pressure ECCS Systems (RHR, Core Spray) to normal range.
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1 **Scenario No.:** 3 **Event No.:** 8

Event Description: Reactor Feedpump fails to trip on high level

Time	Position	Applicant's Action or Behavior
NOTE to Examiners: Following Emergency Depressurization reactor water level will swell resulting in a Reactor Feed Pump (RFP) Trip setpoint and the RFP will not trip automatically.		
	ATC	Recognizes that reactor water level has exceeded the trip setpoint for the running reactor Feedpump and the reactor Feedpump should have tripped. Press TURBINE TRIP pushbutton on benchboard A.
	Booth Operator	**When requested to investigate the Reactor Feedpump for reasons it may not have tripped when required, respond that there is nothing abnormal around the Reactor Feedpump.**
	CRS	Acknowledges the Reactor Feedpump did not trip automatically and it has been manually tripped. Directs the BOP Operator to maintain reactor water level using ECCS Systems.
	BOP	Maintains Reactor Water Level using Core Spray, and/or RHR.
		END OF EVENT
	Notes	
	Proceed to the next event at direction of the lead examiner.	

Op-Test No.: 1		**Scenario No.:** 3 **Event No.:** 9
Event Description: SGT Fans A & B fail to auto start		
Time	**Position**	**Applicant's Action or Behavior**
NOTE to Examiners: Malfunctions PC18a and PC18b, SGT Fans Fail to Auto Start are ACTIVE.		
	BOP	Recognizes the SGT fan failed to auto start upon a group 6 isolation signal and SGT inlet valves SGT-AO-249 (250) and outlet valves SGT-AO-251 (252) did not auto open. Informs CRS that SGT fans did not start. Places the Fan Control Switches to RUN to start both Fans. Ensures both Inlet and Outlet valves open following start of fans.
	CRS	Directs BOP to place the SGT Fan switches to RUN and ensure system is maintaining negative pressure in the reactor building.
	Booth Operator	**If requested to investigate the SGT Fans for reasons they may not have started, respond you will notify maintenance to investigate.**
		END OF EVENT
	Notes	

Op-Test No.: 1 **Scenario No.:** 3 **Event No.:** 9

Event Description: SGT Fans A & B fail to auto start

Time	Position	Applicant's Action or Behavior
	When the RPV has been depressurized and RPV level is has been restored within band, stop the scenario as directed by the lead examiner.	
	END OF SCENARIO	

Simulator Setup

Initialize the simulator in IC 10 (BOL) **(Protected IC 233)**

Triggers and Malfunctions

E4 – SW01d, Trip, Service Water Pump D trip
E1 – RD03d, Severity 22%, Control rod 18-39 drifts in.
E3 – HP05, Inadvertent initiation
CR01, TD 5:00, Severity 1%
CR03, TD 6:00, Severity 100%, Ramp 10:00 minutes
HP06, HPCI steam line break, Severity 5%, Ramp 10:00 minutes
E6 – NM05b, IRM B power supply failure

PC18a (Active) Standby Gas Treatment train A failure to start.
PC18b (Active) Standby Gas Treatment train B failure to start.
FW28a and FW28b (Active), RFP fails to trip on high water level.
HP09 (Active) HPCI fails to automatically isolate.
HP15 (Active) HPCI fails to automatically isolate on low steam supply pressure.

Overrides

- zdihpcisws2[2] Control Switch for HPCI-MO-16, OPEN (Active)
- zdihpcisws1[2] Control Switch for HPCI-MO-15, OPEN (Active)
- zdihpciswmo15[2] Control Switch for HPCI-MO-15 (ASD ROOM), OPEN (Active)
- zdihpciswmo16[2] Control Switch for HPCI-MO-16 (ASD ROOM), OPEN (Active)
- zdihpcisws32[1] HPCI Manual Isolation Switch, OFF (Active)
- an:p1641, HPCI LOGIC INITITATED Alarm, OFF(Active)

Panel Set-up

- Ensure the following breakers are in “Normal After Trip” position:
  a. 1CN
  b. 1DN
  c. 1AN
  d. 1BN
- Place the “Breakers must be cycled” tags on the following breakers:
  e. 1CN
  f. 1DN
  g. 1AN
  h. 1BN
- Ensure RWM is “Operating below LPSP” with no rod blocks.
- Place PC-PIC-513 in manual and shut and lower Containment Pressure to “0”.

Procedures Needed

- Procedure 2.1.1 (2 Copies) with steps 4.22 and 5.3.6 completed.
- Procedure 2.2.77, Attachment 1, Step 1.14 complete.
- Procedure 2.2.28.1 Step 5.14 completed.

Tags Hung

- Mark up boards and ensure tag reflects CREF is on Division I.

Parameter Monitoring:

Monitor RPV Pressure, Average Torus Water Temperature and Torus Water Level (HCTL &BIIT)

Turnover Sheet:

Plant Status: The plant is at 4% reactor power during a startup following refueling. Procedure 2.1.1, Steps 4.22 and 5.36 are completed, 2.2.77 Attachment 1, Step 1.14 is complete, 2.2.28.1 Step 5.14 is complete, LCOs and Logs are complete for change to MODE 1. Fuel is being de-channeled on the refueling floor, Reactor Coolant samples (1xE-3 Micro-Curies / CC) indicate higher than normal gross activity level for this point in a startup. Site Management and Reactor Engineering have indicated the startup can continue normally. Continue plant startup.

Risk: Green

Activities in Progress: Fuel is being de-channeled on the refueling floor.

LCOs in effect: No Tech Specs Limitations in effect.

Equipment out of service: None

Activities for the Shift: Continue plant startup.