

ES-303, Rev. 9

Individual Examination Report

Form ES-303-1

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Ex. 6

U.S. Nuclear Regulatory Commission Individual Examination Report					
Applicant's Name: (b)(6)			Docket Number: (b)(6)		
I	R	Examination Type (Initial or Retake)	Facility Name: Browns Ferry		
	X	Reactor Operator	Facility Description	X	Hot
		Senior Reactor Operator (SRO) Instant			Cold
		SRO Upgrade		X	BWR
		SRO Limited to Fuel Handling			PWR

Written Examination Summary					
NRC Author/Reviewer: R. Baldwin			RO/SRO/Total Exam Points 75 / NA / 75		
NRC Grader/Reviewer: M. Riches			Applicant Points 68 / NA / 66		
Date Administered: May 18, 2012			Applicant Grade (%) 88.00 / NA / 88.00		
Operating Test Summary					
Administered by: NA			Date Administered: NA		
Walk-Through (Overall)					W
Administrative Topics					W
Simulator Operating Test					W
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination	X			<i>Mark J. Riches</i> Mark J. Riches	06/14/2012
Operating Test			X	<i>Kenneth D. Schaeff</i> Kenneth D. Schaeff	06/14/2012
Final Recommendation	X			<i>Richard S. Baldwin</i> Richard S. Baldwin	06/19/2012
License Recommendation					
X	Issue License	<i>Mark E. Franke</i> Mark E. Franke			Date
	Deny License				7/3/12

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		SRO Limited to Fuel Handling			PWR

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Written Examination Summary					
NRC Author/Reviewer: R. Baldwin			RO/SRO/Total Exam Points 75 / 25 / 100		
NRC Grader/Reviewer: M. Riches			Applicant Points 70 / 20 / 90		
Date Administered: May 18, 2012			Applicant Grade (%) 93.33 / 80.00 / 90.00		
Operating Test Summary					
Administered by: NA			Date Administered: NA		
Walk-Through (Overall)					W
Administrative Topics					W
Simulator Operating Test					W
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination	X			<i>Mark J. Riches</i> Mark J. Riches	06/14/2012
Operating Test			X	<i>Kenneth D. Schest</i> Kenneth D. Schest	06/14/2012
Final Recommendation	X			<i>Richard S. Baldwin</i> Richard S. Baldwin	06/19/2012
License Recommendation					
<input checked="" type="checkbox"/>	Issue License	<i>Mark E. Franke</i>			Date
<input type="checkbox"/>	Deny License				7/3/12

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U.S. Nuclear Regulatory Commission Individual Examination Report					
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Written Examination Summary					
NRC Author/Reviewer: R. Baldwin			RO/SRO/Total Exam Points 75 / NA / 75		
NRC Grader/Reviewer: M. Riches			Applicant Points 67 / NA / 67		
Date Administered: May 18, 2012			Applicant Grade (%) 89.33 / NA / 89.33		
Operating Test Summary					
Administered by: NA			Date Administered: NA		
Walk-Through (Overall)			W		
Administrative Topics			W		
Simulator Operating Test			W		
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination	X			Mark J. Riches	06/14/2012
Operating Test			X	Kenneth D. Schaaf	06/14/2012
Final Recommendation	X			Richard S. Baldwin	06/19/2012
License Recommendation					
X	Issue License	Mark E. Franke			Date 7/3/12
	Deny License				

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APPLICANT DOCKET NUMBER (b)(6)

U.S. Nuclear Regulatory Commission
Individual Examination Report

Applicant's Name: (b)(6) Docket Number: (b)(6) Ex 6

I	R	Examination Type (Initial or Retake)	Facility Name: Browns Ferry
	X	Reactor Operator	X Hot
		Senior Reactor Operator (SRO) Instant	Cold
		SRO Upgrade	X BWR
		SRO Limited to Fuel Handling	PWR

Written Examination Summary					
NRC Author/Reviewer: Bruno Caballero			RO/SRO/Total Exam Points: 75 / N/A / 75		
NRC Grader/Reviewer: Mark Riches			Applicant Points: 56 / N/A / 56		
Date Administered: August 19, 2011			Applicant Grade (%): 74.66 / N/A / 74.66		
Operating Test Summary					
Administered by: N/A			Date Administered: N/A		
Walk-Through (Overall)					W
Administrative Topics					W
Simulator Operating Test					W
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination		X		Mark Riches Mark Riches	9-6-11
Operating Test			X	N/A	N/A
Final Recommendation		X		Bruno Caballero Bruno Caballero	9-6-11
License Recommendation					
	Issue License	Mark Franke 			Date
X	Deny License				09/13/11

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Written Examination Summary					
NRC Author/Reviewer: Bruno Caballero			RO/SRO/Total Exam Points: 75 / N/A / 75		
NRC Grader/Reviewer: Mark Riches			Applicant Points: 57 / N/A / 57		
Date Administered: August 19, 2011			Applicant Grade (%): 76.00 / N/A / 76.00		
Operating Test Summary					
Administered by: Edwin Lea			Date Administered: August 8-12, 2011		
Walk-Through (Overall)					S
Administrative Topics					S
Simulator Operating Test					S
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination		X		Mark Riches Mark Riches	9-6-11
Operating Test	X			Edwin Lea Edwin Lea	9/6/2011
Final Recommendation		X		Bruno Caballero Bruno Caballero	9-6-11
License Recommendation					
	Issue License	Mark Franke			Date
X	Deny License				Date
					09/13/11

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Applicant Docket Number: (b)(6)		
Walk-Through Grading Details	Evaluation (S or U)	Comment Page Number
Administrative Topics		
a. Determine Adequate Performance of License Reactivation	S	
b. 2-SR-2 ICS Computer Point Logs <i>Administered by G. Apper</i>	S	
c. Evaluate Recombiner Performance <i>Administered by M. Riches</i>	S	
d. n/a		
e. EPIP-3, Appendix B, Unit Operator Notification <i>Administered by G. Apper</i>	S	
Systems - Control Room		
a. Recirc Pump Recovery with Manual Scram <i>Administered by G. Apper</i>	S	
b. EOI-Appendix-7D, Standby Coolant Injection <i>Administered by G. Apper</i>	S	
c. EOI-Appendix-11C, HPCI in Pressure Control Mode <i>Administered by G. Apper</i>	S	
d. EOI-Appendix-13, Emergency Vent Primary Containment <i>Administered by G. Apper</i>	S	
e. RWM Functional Test for Startup <i>Administered by G. Apper</i>	S	
f. USST 1B Transformer Tap Changer Auto Checks <i>Administered by G. Apper</i>	S	
g. EOI-Appendix-12, Containment Venting (High Release) <i>Administered by B. Caballero</i>	S	
h. Close MSIVs during Power Operations <i>Administered by G. Apper</i>	S	
Systems - In-Plant		
i. Stator Cooling Water Return to Automatic Temp Control	U	4
j. Transfer DG A control to 4kV SD Bd A & Secure DG	S	
k. EOI-Appendix-7K, Alternate Injection Fire System Lineup	U	5

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Applicant Docket Number: (b)(6)					
Reactor Operator Simulator Operating Test Grading Details					
Competencies/ Rating Factors (REs)	RF Weights	RF Scores	RF Grades	Comp. Grades	Comment Page No.
1. Interpretation/Diagnosis					
a. Recognize & Verify Status	0.40	3	1.20		
b. Interpret & Diagnose Conditions	0.30	3	0.90	3.00	
c. Prioritize Response	0.30	3	0.90		
2. Procedures/Tech Specs					
a. Reference	0.30	3	0.90		
b. Procedure Compliance	0.40	3	1.20	3.00	
c. Tech Spec Entry	0.30	3	0.90		
3. Control Board Operations					
a. Locate & Manipulate	0.40	3	1.20		
b. Understanding	0.30	3	0.90	3.00	
c. Manual Control	0.30	3	0.90		
4. Communications					
a. Provide Information	0.34	3	1.02		
b. Receive Information	0.33	3	0.99	3.00	
c. Carry Out Instructions	0.33	3	0.99		

[Note: Enter RF Weights (nominal, adjusted, or "0" if not observed (N/O)), RF Scores (1, 2, 3, or N/O), and RF Grades from Form ES-303-4 and sum to obtain Competency Grades.]

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APPLICANT DOCKET NUMBER (b)(6)

Ex. 6

CROSS REFERENCE:

Systems - In-Plant: i

JPM/TASK:

Stator Cooling Water Return to Automatic Temp Control

EXPECTED ACTION/RESPONSE:

The applicant was expected to return the Stator Water Cooling system to automatic temperature control in accordance with 2-ARP-25-114. In part the applicant was expected to depress 2-HS-35-54 (located on control panel) to RESET the air supply to 2-TCV-35-54 (Critical Step).

APPLICANT ACTION/RESPONSE:

During the performance of the JPM, the applicant performed all steps of the ARP correctly except depressing 2-HS-35-54. The failure to depress 2-HS-35-54 was a failure of a critical step. During the performance of the JPM the applicant stated that he would depress a button located in a red enclosure located next to the valve. The applicant never located 2-HS-35-54 on the panel. Because the applicant failed to perform the critical step of depressing 2-HS-35-54, he received a grade of unsatisfactory on this JPM.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to locate plant equipment and perform actions as directed by procedure. Specifically, the applicant did not locate 2-HS-35-54 and depress the reset pushbutton as directed by plant procedure.

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APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

Systems - In-Plant: k

JPM/TASK:

EOI-Appendix-7K, Alternate Injection Fire System Lineup

EXPECTED ACTION/RESPONSE:

The applicant was directed to perform a manual valve alignment per Attachment 1 of 1-EOI Appendix 7K, Alternate RPV Injection System Lineup Fire System. In part the applicant was expected to locate and open 1-FCV-23-57, STANDBY COOLANT VALVE FROM RHRSW (Critical Step).

APPLICANT ACTION/RESPONSE:

The applicant located 0-FCV-25-32 and 0-FCV-025-0070 RSW STRG TNK ISOLATION valves, 1-FCV-074-0101, UNITS 1-2 DISCHARGE CROSSTIE, 1-FCV-023-0052, RHR HX 1D RHRSW OUTLET VALVE, 1-FCV - 074-0076, RHR SYSTEM II INBD INJECTION VLV, and 1-FCV-074-0066, RHR SYSTEM II OUTBD INJECTION VLV, and performed the manual alignment as required by Appendix 7K. However, the applicant was not able to locate 1-FCV-23-57. The failure to locate and manually align 1-FCV-23-57 was a failure of a critical step. The applicant started this JPM at 12:57. After not being able to locate the valve, at 1:32 the applicant stated that he just did not know where the valve was and he would make a phone call. At that point the applicant again stated that he could not locate the valve and gave the JPM back to the examiner. The JPM was ended. Because the applicant failed to perform a critical step of the JPM, he received a grade of unsatisfactory on this JPM.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to locate plant equipment. Specifically, the applicant was not able to locate 1-FCV-23-57 as required by Appendix 7K.

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		Reactor Operator		X	Hot
X		Senior Reactor Operator (SRO) Instant	Facility Description		Cold
		SRO Upgrade		X	BWR
		SRO Limited to Fuel Handling			PWR

Ex 6

Written Examination Summary					
NRC Author/Reviewer: Bruno Caballero			RO/SRO/Total Exam Points 75 / 25 / 100		
NRC Grader/Reviewer: Mark Riches			Applicant Points 51 / 21 / 72		
Date Administered: August 19, 2011			Applicant Grade (%) 68.00 / 84.00 / 72.00		
Operating Test Summary					
Administered by: Bruno Caballero			Date Administered: August 8-12, 2011		
Walk-Through (Overall)					S
Administrative Topics					S
Simulator Operating Test					S
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination		X		Mark Riches	9-8-11
Operating Test	X			Bruno Caballero	9-6-11
Final Recommendation		X		Edwin Lee	9/8/2011
License Recommendation					
	Issue License	Mark Franke			Date
X	Deny License				9/13/11

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Applicant Docket Number: (b)(6)		
Walk-Through Grading Details	Evaluation (S or U)	Comment Page Number
Administrative Topics		
a. Determine Adequate Performance of License Reactivation	S	
b. NRC Event Notification due to Safety Limit Violation (Administered by Edwin Lee)	S	
c. Evaluate Recombiner Performance (Administered by Mark Riches)	S	
d. Determine stay time in Emergency & Authorize (Administered by Edwin Lee)	S	
e. Classify an Event	U	4
Systems - Control Room		
a. Recirc Pump Recovery with Manual Scram (Administered by Gabe Apper)	S	
b. EOI-Appendix-7D, Standby Coolant Injection (Administered by Gabe Apper)	S	
c. EOI-Appendix-11C, HPCI in Pressure Control Mode (Administered by Mark Riches)	S	
d. EOI-Appendix-13, Emergency Vent Primary Containment (Administered by Gabe Apper)	S	
e. RWM Functional Test for Startup (Administered by Gabe Apper)	S	
f. USST 1B Transformer Tap Changer Auto Checks (Administered by Gabe Apper)	S	
g. EOI-Appendix-12, Containment Venting (High Release) (Administered by Mark Riches)	S	
h. n/a		
Systems - In-Plant		
i. Stator Cooling Water Return to Automatic Temp Control	U	5
j. Transfer DG A control to 4kV SD Bd A & Secure DG	S	
k. EOI-Appendix-7K, Alternate Injection Fire System Lineup	S	

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Applicant Docket Number: (b)(6)					
Senior Reactor Operator Simulator Operating Test Grading Details					
Competencies/ Rating Factors (RFs)	RF Weights	RF Scores	RF Grades	Comp. Grades	Comment Page No.
1. Interpretation/Diagnosis					
a. Recognize & Attend	0.20	3	0.60		
b. Ensure Accuracy	0.20	3	0.60	2.70	6
c. Understanding	0.30	2	0.60		
d. Diagnose	0.30	3	0.90		
2. Procedures					
a. Reference	0.30	3	0.90		
b. EOP Entry	0.30	3	0.90	3.00	
c. Correct Use	0.40	3	1.20		
3. Control Board Operations					
a. Locate & Manipulate	0.34	3	1.02		
b. Understanding	0.33	3	0.99	2.67	7
c. Manual Control	0.33	2	0.66		
4. Communications					
a. Clarity	0.40	3	1.20		
b. Crew & Others Informed	0.40	3	1.20	3.00	
c. Receive Information	0.20	3	0.60		
5. Directing Operations					
a. Timely & Decisive Action	0.30	3	0.90		
b. Oversight	0.30	3	0.90	2.80	
c. Solicit Crew Feedback	0.20	3	0.60		
d. Monitor Crew Activities	0.20	2	0.40		8
6. Technical Specifications					
a. Recognize and Locate	0.40	3	1.20		
b. Compliance	0.60	3	1.80	3.00	

[Note: Enter RF Weights (nominal, adjusted, or "0" if not observed (N/O)), RF Scores (1, 2, 3, or N/O), and RF Grades from Form ES-303-4 and sum to obtain Competency Grades.]

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CROSS REFERENCE: Admin JPM "e"**JPM/TASK:** Classify an event (time critical)**EXPECTED ACTION/RESPONSE:**

The applicant was expected to analyze current plant conditions, after a dropped control rod event and a Reactor Core Isolation Cooling (RCIC) steam leak, and determine that the highest required emergency classification was an Alert, EAL designator 2.3A or 1.3A, (critical step) within 15 minutes (critical step).

Additionally, the applicant was expected to complete EPIP-3, Alert, Appendix A, Alert Initial Notification Form, within 15 minutes, with the following critical information identified:

- "Unit 2" block checked (critical step)
- EAL designator 2.3A or 1.3A (critical step)
- Minor releases within federally approved limits checked for both airborne and liquid (critical step)
- Protective Action Recommendation "none" block checked (critical step)

APPLICANT ACTION/RESPONSE:

The applicant incorrectly determined that the highest required emergency classification was a Site Area Emergency, EAL designator 2.3-S2. This was a failure of a critical step.

After the JPM was completed, the examiner asked the applicant how he determined a Site Area Emergency classification existed. The applicant stated that the reactor coolant system (RCS) piping was intact; however, since the RCIC inboard steam isolation valve (71-2) was the only closed isolation valve (i.e., 71-3 outboard steam isolation valve had failed to close), this represented a substantial threat to primary containment isolation given the existing radiation levels in the drywell, caused by the failed fuel.

LACK OF ABILITY/KNOWLEDGE:

The applicant's performance for this JPM was unsatisfactory because he incorrectly determined that the highest required emergency classification was a Site Area Emergency, which was a critical step.

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CROSS REFERENCE: JPM "i"**JPM/TASK:** Stator Cooling Water Return to Automatic Temp Control**EXPECTED ACTION/RESPONSE:**

The applicant was expected to return the Stator Water Cooling air-operated temperature control valve to automatic in accordance with Step "L" in annunciator procedure 2-ARP-25-114A, STATOR CLG WATER GEN INLET HI TEMP. The initial conditions provided to the applicant were:

- The temperature control valve controller had malfunctioned.
- The control air supply to 2-TCV-35-54 had been manually isolated.
- An automatic isolation signal to 2-TCV-35-54 had occurred.
- All repairs were complete and the 2-TCV-35-54 was ready to be returned to service in accordance with step L in the annunciator procedure.

The applicant was expected to:

1. Re-open the control air supply isolation valve, 2-32-1007 (critical step)
2. Reset the automatic isolation signal by depressing the temperature control valve isolation reset pushbutton, 2-HS-35-54 (critical step)
3. Turn the 2-TCV-35-54 hand wheel fully clockwise to lower the valve actuator (critical step)

APPLICANT ACTION/RESPONSE:

The applicant opened the control air supply isolation valve (2-32-1007). The applicant did not depress the reset pushbutton. The applicant turned the 2-TCV-35-54 hand wheel clockwise to fully lower the valve.

After the JPM was completed, the examiner asked the applicant why he had not reset the automatic isolation by depressing the reset pushbutton. The applicant referred back to his cue sheet and stated that he had overlooked the sentence provided in the initial conditions which indicated that an automatic isolation signal had previously been received. The applicant stated that if he had seen the initial condition pertaining to the automatic isolation signal, he would have pushed the reset pushbutton. The applicant then attempted to find the reset pushbutton; however, he could not locate the pushbutton.

LACK OF ABILITY/KNOWLEDGE:

The applicant's performance for this JPM was unsatisfactory because he did not depress the temperature control valve isolation reset pushbutton, 2-HS-35-54, which was a critical step.

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CROSS REFERENCE: 1.c: Interpretation/Diagnosis - Understanding**SCENARIO/EVENT:**

Scenario 7 / Event 5: B2 Feedwater Heater Leak

EXPECTED ACTION/RESPONSE:

The applicant, as senior reactor operator (SRO), was expected to direct the crew to:

- 1) enter 2-AOI-6-1A, High Pressure Feedwater Heater String/Extraction Steam Isolation,
- 2) reduce reactor power by 5% below the initial power, and
- 3) isolate both feed water and extraction steam to the B feedwater heater string before a turbine trip occurred,

based on indications of a tube leak in the B2 Feedwater heater.

APPLICANT ACTION/RESPONSE:

The applicant directed the crew to review 2-AOI-6-1A, based on the imminent automatic extraction steam isolation signal, and to reduce reactor power by 5%. However, when the MOIST SEPARATOR LVL CONT RSVR B2 LEVEL HIGH annunciator (9-7C, W17) began alarming, the applicant directed the crew to manually scram the reactor.

After the scenario was completed, the examiner asked the applicant why the crew had not completed the action listed on 2-AOI-6-1A, Attachment 1, Feedwater Heater String Isolation Alignment Requirements. The applicant stated that they didn't have time to fully isolate the feed water heater because the level in the B2 moisture separator reheater (MSR) drain tank was getting too high, which meant that a turbine trip was imminent. The applicant stated that there were no remote means of determining and/or monitoring level in the MSR drain tank and that the MSR drain tanks drained into the B2 feed water heater.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in understanding the MSR drain tank level control response based on his directive to (conservatively) manually scram the reactor before dispatching local personnel to verify that the MSR high level dump valve was diverting flow to the condenser and maintaining MSR drain tank level in accordance with the MOIST SEPARATOR LVL CONT RSVR B2 LEVEL HIGH annunciator procedure (9-7C, W17). An automatic extraction steam isolation signal resulted in the MSR drain tank normal drain path swapping to the high level drain path (condenser), which was an expected alarm. Because the applicant made one error for this competency, his score was downgraded to a "2."

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CROSS REFERENCE: 3.c: Control Board Operations – Manual Control**SCENARIO/EVENT:** Scenario 1 / Event 4: Control Rod Drive (CRD) Flow Controller Failure**EXPECTED ACTION/RESPONSE:**

The applicant, as reactor operator (RO), was expected to recognize that the 2-FCV-85-11, CRD Flow Controller, had failed in automatic and then take prompt, manual control to restore CRD flow/cooling.

APPLICANT ACTION/RESPONSE:

The applicant initially reported to the senior reactor operator (SRO) that control rod 30-39 was difficult to withdraw. After examining the CRD hydraulic parameters at Panel 9-5, the applicant told the SRO that drive water differential pressure was 20 psig. The SRO told the applicant to investigate and raise drive water flow. The CONTROL ROD DRIVE UNIT TEMP HIGH annunciator (9-5A, W17) began alarming. The applicant told the SRO that he thought that the flow controller had failed in automatic and that he was entering 2-AOI-85-3, CRD System Failure. The SRO told the applicant to send someone to operate the flow control valves locally. The applicant then began searching through 2-OI-85, Control Rod Drive System, and then directed the auxiliary unit operator (AUO) to perform OI-85, Section 8.24 to transfer 85-11 from automatic to manual. At this point, the SRO stated that 3 control rods were greater than 350 °F and told the applicant to get CRD flow back. The applicant then told the SRO that he wanted permission to take manual control of the CRD flow controller. After the SRO concurred, the applicant placed the flow controller in manual and re-established CRD flow.

After the scenario was completed, the examiner asked the applicant why he did not initially place the CRD flow controller in manual to re-establish flow. The applicant stated that he had taken too long to place the flow controller in manual because he was searching the procedure for the guidance that allowed him to take manual control of the flow controller. The applicant later stated that the guidance listed in OPDP-1, Conduct of Operations, Section 3.5, Manual Control of Automatic functions, provided the guidance for taking the CRD flow controller to manual.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in the ability to take prompt, manual control of the CRD flow controller after it had failed to operate in the automatic mode. Consequently, the operability of several CRDs was threatened. Because the applicant made one error for this competency, his score was downgraded to a "2."

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APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE: 5.d: Directing Operations – Monitor Crew Activities**SCENARIO/EVENT:** Scenario 4 / Event 7: EHC Pressure Transducer failure**EXPECTED ACTION/RESPONSE:**

The applicant, as senior reactor operator (SRO), was expected to recognize that reactor pressure was lowering uncontrollably and then direct the crew to manually close the main steam isolation valves (MSIVs) when the reactor was not subcritical, i.e., during an anticipated transient without scram (ATWS), before the uncontrolled cool down added positive reactivity.

APPLICANT ACTION/RESPONSE:

The applicant directed the crew to manually scram the reactor after drywell pressure was rising following a seal failure on the 3B Recirc Pump. After the scram, when reactor pressure was 700 psig, the balance of plant (BOP) operator told the applicant that the turbine bypass valves were all open and that the reactor was depressurizing. Additionally, the reactor operator (RO) subsequently told the applicant that they needed to get reactor pressure under control. The applicant was performing 3-C-5, Level/Power control, and finally told the crew to close all eight MSIVs after reactor pressure had lowered to 483 psig.

After the scenario was completed, the examiner asked the applicant why reactor pressure continued to lower. The applicant stated that he had directed the crew to try to close the bypass valves and stated that he did not want to exceed the cool down rate limit and did not want to add positive reactivity during the ATWS. The applicant stated that the guidance listed in 3-EOI-1, RC/P required the crew to maintain pressure constant during the ATWS.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in the ability to ensure that correct and timely activities were carried out by the crew because he did not direct the crew to close the MSIVs when the turbine bypass valves failed. Consequently, much of the reactor water inventory was lost to the condenser, which required a subsequent emergency depressurization. Because the applicant made one error for this competency, his score was downgraded to a "2."

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Ex 6

U.S. Nuclear Regulatory Commission Individual Examination Report					
Applicant's Name: (b)(6)			Docket Number: (b)(6)		
<input type="checkbox"/>	<input type="checkbox"/>	Examination Type (Initial or Retake)	Facility Name: Browns Ferry		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reactor Operator	Facility Description	<input checked="" type="checkbox"/>	Hot
<input type="checkbox"/>	<input type="checkbox"/>	Senior Reactor Operator (SRO) Instant		<input type="checkbox"/>	Cold
<input type="checkbox"/>	<input type="checkbox"/>	SRO Upgrade		<input checked="" type="checkbox"/>	BWR
<input type="checkbox"/>	<input type="checkbox"/>	SRO Limited to Fuel Handling		<input type="checkbox"/>	PWR

Ex 6

Written Examination Summary					
NRC Author/Reviewer: Bruno Caballero			RO/SRO/Total Exam Points: 75 / N/A / 75		
NRC Grader/Reviewer: Mark Riches			Applicant Points: 57 / N/A / 57		
Date Administered: August 19, 2011			Applicant Grade (%): 76.00 / N/A / 76.00		
Operating Test Summary					
Administered by: Edwin Lea			Date Administered: August 8-12, 2011		
Walk-Through (Overall)					S
Administrative Topics					S
Simulator Operating Test					S
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination		X		Mark Riches	9-6-11
Operating Test	X			Edwin Lea	9/6/2011
Final Recommendation		X		Bruno Caballero	9-6-11
License Recommendation					
	Issue License	Mark Franke			Date
X	Deny License				09/13/11

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Ex 6

Applicant Docket Number: (b)(6)		
Walk-Through Grading Details	Evaluation (S or U)	Comment Page Number
Administrative Topics		
a. Determine Adequate Performance of License Reactivation Administered by B. Caballero	S	
b. 2-SR-2 ICS Computer Point Logs Administered by G. Apper	S	
c. Evaluate Recombiner Performance	U	4
d. n/a		
e. EPIP-3, Appendix B, Unit Operator Notification Administered by G. Apper	S	
Systems - Control Room		
a. Recirc Pump Recovery with Manual Scram Administered by G. Apper	S	
b. EOI-Appendix-7D, Standby Coolant Injection Administered by G. Apper	S	
c. EOI-Appendix-11C, HPCI in Pressure Control Mode Administered by M. Riches	S	
d. EOI-Appendix-13, Emergency Vent Primary Containment Administered by G. Apper	S	
e. RWM Functional Test for Startup Administered by G. Apper	S	
f. USST 1B Transformer Tap Changer Auto Checks Administered by G. Apper	S	
g. EOI-Appendix-12, Containment Venting (High Release) Administered by G. Apper	S	
h. Close MSIVs during Power Operations Administered by Administered by G. Apper	S	
Systems - In-Plant		
i. Stator Cooling Water Return to Automatic Temp Control	S	
j. Transfer DG A control to 4kV SD Bd A & Secure DG	S	
k. EOI-Appendix-7K, Alternate Injection Fire System Lineup	S	

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Ex 6

Applicant Docket Number: (b)(6)					
Reactor Operator Simulator Operating Test Grading Details					
Competencies/ Rating Factors (RFs)	RF Weights	RF Scores	RF Grades	Comp. Grades	Comment Page No.
1. Interpretation/Diagnosis					
a. Recognize & Verify Status	0.40	3	1.20		
b. Interpret & Diagnose Conditions	0.30	1	0.30	2.40	5
c. Prioritize Response	0.30	3	0.90		
2. Procedures/Tech Specs					
a. Reference	0.30	3	0.90		
b. Procedure Compliance	0.40	3	1.20	3.00	
c. Tech Spec Entry	0.30	3	0.90		
3. Control Board Operations					
a. Locate & Manipulate	0.40	2	0.80		
b. Understanding	0.30	3	0.90	2.60	6
c. Manual Control	0.30	3	0.90		
4. Communications					
a. Provide Information	0.34	3	1.02		
b. Receive Information	0.33	3	0.99	3.00	
c. Carry Out Instructions	0.33	3	0.99		

[Note: Enter RF Weights (nominal, adjusted, or "0" if not observed (N/O)), RF Scores (1, 2, 3, or N/O), and RF Grades from Form ES-303-4 and sum to obtain Competency Grades.]

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

CROSS REFERENCE: Administrative Topics - JPM "c"**JPM/TASK:** Evaluate Recombiner Performance**EXPECTED ACTION/RESPONSE:**

The applicant was expected to perform 3-OI-66, Off-Gas System, Section 6.1, Recombiner Performance Evaluation, using data provided. At Step 6.1 [1.1] the applicant was expected to determine that Recombiner 3A was in service (Critical Step). After determining that Recombiner 3A was in service, the applicant was expected to identify that Recombiner 3A's inlet temperature was 392 °F (Critical Step). At Step 6.1 [1.2], the applicant was expected to determine that Recombiner 3A (center) temperature was 612 °F (Critical Step). At Step 6.1 [1.3], the applicant was expected to calculate the temperature difference (ΔT) to be 220 °F (612 °F - 392 °F) (Critical Step). The applicant was expected to continue performing Section 6 of 3-OI-66 and determine that the calculated ΔT vs MWt plotted above the HWC in service line and the system was operating satisfactory (Critical Step).

APPLICANT ACTION/RESPONSE:

At Step 6.1 [1.1] the applicant determined that Recombiner 3B was in service instead of 3A. The failure to determine that 3A was in service was a failure of a critical step. Because the applicant concluded that Recombiner 3B was in service, the data he used resulted in a calculation which indicated a ΔT of 60 °F (380 °F center line temperature - 320 °F inline temperature). This was a failure of several critical steps. The applicant concluded that the performance of Recombiner B was UN-SAT based on ΔT vs MWt plot. This was also a failure of a critical step.

Following the JPM the applicant was asked why he selected Recombiner B. The applicant stated that he selected Recombiner B based on lower temperatures and steam flow. The applicant also state that because Recombiner B performance was unsatisfactory, he could put Recombiner A in service and based in the information provided, Recombiner 3A would be satisfactory.

Because the applicant failed to correctly perform several critical steps he was given a grade of unsatisfactory on this JPM.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to determine equipment status. Specifically, the applicant failed to identify which recombinder was in service based on data provided

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APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

1.b: Interpretation/Diagnosis - Interpret & Diagnose Conditions

SCENARIO/EVENT:

Scenario No. 4 / Event No. 9: RCIC steam line valve fails to auto open

EXPECTED ACTION/RESPONSE:

The applicant, as the BOP, was expected to recognize that RCIC failed to automatically start following an initiation signal. After the applicant recognized that RCIC failed to auto start, the applicant was expected to determine that RCIC failed to auto start due to a failure of the TURBINE STEAM SUPPLY VLV, 3-FCV-71-8, to open. The applicant was expected to open 3-FCV-71-8 and manually start RCIC. Starting RCIC was a critical task.

APPLICANT ACTION/RESPONSE:

While taking actions to address plant condition, the applicant noticed that RCIC failed to automatically start once an initiation signal was received. The applicant informed the crew that RCIC failed to automatically start. The applicant then attempted to manually start RCIC, but was unable to do so. The applicant informed the crew that RCIC could not be started manually. RCIC was never started during the scenario.

Following the scenario, the applicant was asked the status of RCIC. The applicant stated that RCIC failed to start automatically and he was not able to manually start it. The applicant was then asked what prevented RCIC from starting. The applicant stated that he was not sure. The applicant was then asked to identify the valve alignment required for RCIC to automatically start or to be manually started. The applicant then scanned the control board and recognized that 3-FCV-71-8 was closed. The applicant stated that he should have opened the valve and by doing so, RCIC could have been manually started. The failure to recognize that 3-FCV-71-8 did not open and to take actions to open the valve and manually start RCIC was a failure of a critical task. Because the applicant failed to complete a critical task, his competency in this area was downgraded to a "1."

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to recognize equipment status. Specifically, the applicant failed to recognize that RCIC TURBINE STEAM SUPPLY VLV 3-FCV-71-8 failed to automatically open when RCIC failed to auto start.

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

CROSS REFERENCE:

3.a Control Board Operations - Locate & Manipulate

SCENARIO/EVENT:

Scenario No. 4 / Event No. 7: EHC Pressure Transducer Failure

EXPECTED ACTION/RESPONSE:

The applicant, as the balance of plant operator (BOP), was expected to recognize that one MSIV failed to automatically close following the initiation of a reactor scram. Upon recognizing that the MSIV failed to automatically close, the applicant was expected to manually close the MSIV.

APPLICANT ACTION/RESPONSE:

Following an automatic reactor scram which occurred at 10:48, due to lowering reactor pressure, the applicant recognized that one of the MSIVs failed to automatically close and informed the crew. The applicant continued to perform verification that other automatic actions had occurred following the reactor scram. Once the applicant completed verifying that expected automatic actions occurred, he then closed the MSIV which had failed to automatically close. The applicant manually closed MSIV approximately one minute later.

Following the scenario the applicant was asked why the reactor scrambled. The applicant stated that the reactor scrambled due to the reactor pressure being less than 852 psig following a failure within the EHC system. The applicant was then asked "what was the position of the MSIVs." The applicant stated that MSIV A, B and C were closed and D was open. The applicant was asked should MSIV D have closed. The applicant stated that MSIV D should have automatically closed because it was a Group 1 isolation valve. Did you take action to immediately close the valve, once you recognized that it failed to close? The applicant stated that he did not, but he should have immediately closed the valve once he recognized that it failed to close. The applicant was then asked was there a procedure which provided guidance concerning automatic actions which failed to occur. The applicant stated that actions associated with the failure of automatic actions to occur are located in OPDP 1, Conduct of Operations. Because the applicant made one error for this competency, his score was downgraded to a "2."

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to take immediate actions following the failure of an automatic action to occur. Specifically, the applicant did not take actions to immediately close MSIV D, once he recognized it failed to close.

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U.S. Nuclear Regulatory Commission
Individual Examination Report

Applicant's Name: (b)(6) Docket Number: (b)(6) Ex 6

I	R	Examination Type (Initial or Retake)	Facility Name: Watts Bar
		Reactor Operator	X Hot
X		Senior Reactor Operator (SRO) Instant	Cold
		SRO Upgrade	BWR
		SRO Limited to Fuel Handling	X PWR


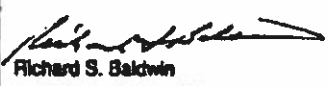

Written Examination Summary					
NRC Author/Reviewer: R. Baldwin			RO/SRO/Total Exam Points 75 / 25 / 100		
NRC Grader/Reviewer: M. Meeks			Applicant Points 64 / 22 / 86		
Date Administered: June 22, 2011			Applicant Grade (%) 85.33 / 88.00 / 86.00		
Operating Test Summary					
Administered by: NA			Date Administered: June 6 – 15, 2011		
Walk-Through (Overall)					W
Administrative Topics					W
Simulator Operating Test					W
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination	X			Michael K. Meeks	07/13/2011
Operating Test			X		
Final Recommendation	X			Richard S. Baldwin	08/01/2011
License Recommendation					
<input checked="" type="checkbox"/>	Issue License	Mark E. Franke			Date
<input type="checkbox"/>	Deny License				8/4/11

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U.S. Nuclear Regulatory Commission Individual Examination Report					
Applicant's Name: (b)(6)			Docket Number (b)(6)		
I	R	Examination Type (Initial or Retake)	Facility Name: Watts Bar		
		Reactor Operator		X	Hot
X		Senior Reactor Operator (SRO) Instant			Cold
		SRO Upgrade			BWR
		SRO Limited to Fuel Handling		X	PWR

Ex 6

Written Examination Summary					
NRC Author/Reviewer: R. Baldwin			RO/SRO/Total Exam Points 75 / 25 / 100		
NRC Grader/Reviewer: M. Meeks			Applicant Points 56 / 24 / 80		
Date Administered: June 22, 2011			Applicant Grade (%) 74.66 / 96.00 / 80.00		
Operating Test Summary					
Administered by: NA			Date Administered: June 6 – 15, 2011		
Walk-Through (Overall)				W	
Administrative Topics				W	
Simulator Operating Test				W	
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination	X			 Michael K. Meeks	07/13/2011
Operating Test			X		
Final Recommendation	X			 Richard S. Baldwin	08/01/2011
License Recommendation					
<input checked="" type="checkbox"/>	Issue License	 Mark E. Franke			Date
<input type="checkbox"/>	Deny License				8/4/11

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U.S. Nuclear Regulatory Commission Individual Examination Report					
Applicant's Name: (b)(6)			Docket Number: (b)(6)		
I	R	Examination Type (Initial or Retake)	Facility Name: McGuire		
	X	Reactor Operator	Facility Description	X	Hot
		Senior Reactor Operator (SRO) Instant			Cold
		SRO Upgrade			BWR
		SRO Limited to Fuel Handling		X	PWR

Written Examination Summary					
NRC Grade/Reviewer: Mark A. Bates			RO Total Exam Points 75		
NRC Grader/Reviewer: Edwin Lea, Jr.			Applicant Points 64		
Date Administered: 7/6/ 2011			Applicant Grade (%) 85.33		
Operating Test Summary					
Administered by: N/A			Date Administered:		
Walk-Through (Overall)				W	
Administrative Topics				W	
Simulator Operating Test				W	
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination	X			Edwin Lea, Jr.	7/25/2011
Operating Test			X	Edwin Lea, Jr.	7/25/2011
Final Recommendation	X			Edwin Lea, Jr.	7/25/2011
License Recommendation					
X	Issue License	Supervisor's Signature			Date
	Deny License	Mark E. Franko			7/26/11

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U.S. Nuclear Regulatory Commission
Individual Examination Report

Applicant's Name: (b)(6) Docket Number: (b)(6) Ex 6

I	R	Examination Type (Initial or Retake)	Facility Name: Farley
		Reactor Operator	X Hot
	X	Senior Reactor Operator (SRO) Instant	Cold
		SRO Upgrade	BWR
		SRO Limited to Fuel Handling	X PWR

Written Examination Summary

NRC Author/Reviewer: R. Aiello	RO/SRO/Total Exam Points: 75 / 24 / 99
NRC Grader/Reviewer: M. Riches	Applicant Points: 70 / 18 / 88
Date Administered: May 24, 2011	Applicant Grade (%): 93.33 / 75.00 / 88.88


Operating Test Summary

Administered by: N/A	Date Administered: N/A
Walk-Through (Overall)	W
Administrative Topics	W
Simulator Operating Test	W

Examiner Recommendations

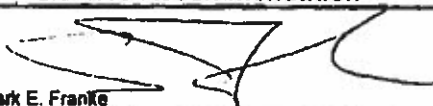
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination	X			Mark J. Riches Mark J. Riches	06-22-11
Operating Test			X	Mark J. Riches Mark J. Riches	06-22-11
Final Recommendation	X			Ronald F. Aiello	6/24/11

License Recommendation

X	Issue License	 Mark E. Franke	Date
	Deny License		7/6/11

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U.S. Nuclear Regulatory Commission Individual Examination Report					
Applicant's Name: (b)(6)			Docket Number: (b)(6)		
I	R	Examination Type (Initial or Retake)	Facility Name: Farley		
	X	Reactor Operator	Facility Description	X	Hot
		Senior Reactor Operator (SRO) Instant			Cold
		SRO Upgrade			BWR
		SRO Limited to Fuel Handling		X	PWR

Written Examination Summary					
NRC Author/Reviewer: R. Aiello			RO/SRO/Total Exam Points: 75 / NA / 75		
NRC Grader/Reviewer: M. Riches			Applicant Points: 69 / NA / 69		
Date Administered: May 24, 2011			Applicant Grade (%): 92.00 / NA / 92.00		
Operating Test Summary					
Administered by: N/A			Date Administered: N/A		
Walk-Through (Overall)					W
Administrative Topics					W
Simulator Operating Test					W
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination	X			Mark J. Riches	06-22-11
Operating Test			X	Mark J. Riches	06-22-11
Final Recommendation	X			Ronald F. Aiello	8/24/11
License Recommendation					
X	Issue License	 Mark E. Franke			Date
	Deny License				7/6/11

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Ex 6

U.S. Nuclear Regulatory Commission Individual Examination Report					
Applicant's Name: (b)(6)			Docket Number: (b)(6)		
I	R	Examination Type (Initial or Retake)	Facility Name: Farley		
		Reactor Operator		X	Hot
	X	Senior Reactor Operator (SRO) Instant	Facility Description		Cold
		SRO Upgrade			BWR
		SRO Limited to Fuel Handling		X	PWR

Ex 6

Written Examination Summary					
NRC Author (Reviewer) R. Aiello			RO/SRO/Total Exam Points: 75 / 24 / 99		
NRC Grader/Reviewer: M. Riches			Applicant Points: 71 / 17 / 88		
Date Administered: May 24, 2011			Applicant Grade (%): 94.66 / 70.83 / 88.88		
Operating Test Summary					
Administered by: N/A			Date Administered: N/A		
Walk-Through (Overall)					W
Administrative Topics					W
Simulator Operating Test					W
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination	X			Mark J. Riches	06-22-11
Operating Test			X	Mark J. Riches	06-22-11
Final Recommendation	X			Ronald F. Aiello	6/24/11
License Recommendation					
X	Issue License	Mark E. Franke			Date 7/6/11
	Deny License				

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**U.S. Nuclear Regulatory Commission
Individual Examination Report**

Applicant's Name: (b)(6) Docket Number: (b)(6)

I	R	Examination Type (Initial or Retake)	Facility Name: Sequoyah
		Reactor Operator	X Hot
	X	Senior Reactor Operator (SRO) Instant	Cold
		SRO Upgrade	BWR
		SRO Limited to Fuel Handling	X PWR

Written Examination Summary

NRC Reviewer: N/A.	RO/SRO/Total Exam Points	W
NRC Grader/Reviewer: N/A	Applicant Points	
Date Administered: N/A	Applicant Grade (%)	

Operating Test Summary

Administered by: Edwin Lea, Jr.	Date Administered: 4/12 - 13/2011
Walk-Through (Overall)	S
Administrative Topics	S
Simulator Operating Test	W

Examiner Recommendations

Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination			X	N/A	
Operating Test	X			Edwin Lea, Jr. Edwin Lea, Jr.	4/15/2011
Final Recommendation	X			Richard S. Baldwin Richard S. Baldwin	4/15/2011

License Recommendation

X	Issue License	Supervisor's Signature	Date
	Deny License	Mark E. Franke	4/15/2011

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File

Applicant Docket Number: (b)(6)			
Walk-Through Grading Details		Evaluation (S or U)	Comment Page Number
Administrative Topics			
a. Calculate Subcooling Margin		S	
b. Evaluate Shift Daily Surveillance Log Mode One		S	
c. Evaluate Arc Flash Clothing Requirements and Tag Verification Requirements during a Clearance Placement.		S	
d. Pre Job Analysis for Emergent Work in the RCA		S	
e. Evaluate Conditions For Emergency Classification		S	
Systems - Control Room			
a. Realign Control Rod H-8		S	
b. Align ECCS Pumps to the Containment Sump		S	
c. Isolate the Ruptured Steam Generator (With MSIV Failure to Close)		S	
d. Start a Reactor Coolant Pump		S	
e. Respond to ERCW Pump Trip		S	
f. Transfer 1A-A 6.9KV SD Bd From Alternate to Normal		S	
g. Respond to a Failure of Power Range Instrument N-44		S	
h. N/A			
Systems - In-Plant			
i. Boron Flowpath Alignment		S	
j. Reset the TD AFW Pump Locally		S	
k. Respond to Decreasing RCS Pressure and Level From the Aux. Control Room		S	

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**U.S. Nuclear Regulatory Commission
Individual Examination Report**

Ex 6 Applicant's Name: (b)(6) Docket Number: (b)(6) Ex 6

I	R	Examination Type (Initial or Retake)	Facility Name: Browns Ferry
X		Reactor Operator	X Hot
		Senior Reactor Operator (SRO) Instant	Cold
		SRO Upgrade	X BWR
		SRO Limited to Fuel Handling	PWR

Written Examination Summary					
NRC Author/Reviewer: Ronald F. Aiello			RO/SRO/Total Exam Points: 75 / N/A / 75		
NRC Grader/Reviewer: Ronald F. Aiello			Applicant Points: 58 / N/A / 58		
Date Administered: February 18, 2011			Applicant Grade (%): 77.33 / N/A / 77.33		
Operating Test Summary					
Administered by: G. Johnson			Date Administered: February 7 - 18, 2011		
Walk-Through (Overall)				S	
Administrative Topics				S	
Simulator Operating Test				S	
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination		X		Ronald F. Aiello	3/16/11
Operating Test	X			Gilbert A. Johnson	3/1/11
Final Recommendation		X		Ronald F. Aiello	3/16/11
License Recommendation					
	Issue License	Malcolm T. Widmann			Date 03/22/11
X	Deny License				

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Ex 6

Applicant Docket Number: (b)(6)		
Walk-Through Grading Details	Evaluation (S or U)	Comment Page Number
Administrative Topics		
a. 2.1.7 2-SR-2 DW Floor and Equipment Drain Log Calculation	S	
b. 2.1.29 Source Range Monitor Count Rate and Signal to Noise Ratio	S	
c. 2.2.41 Determination of Iso Boundary for RFPT Seal Inj Pump 2B or 3B Administered by J. Munro	S*	4
d. 2.3.4 Radiation Exposure Limits under Emergency Conditions	S	
e. N/A		
Systems - Control Room		
a. CRD Pump Trip < 900 psig Reactor Pressure Administered by R. Aiello	S	
b. RFPT Trip Recovery	S	
c. Alternate RPV Pressure Control Drains Administered by R. Aiello	S	
d. Restore Reactor and Refuel Zone Ventilation Following Isolation Administered by R. Aiello	S	
e. Energize 4 KV SD BDs A, C and D from Unit 3 DGs Administered by J. Munro	U	5
f. Loss of Shutdown Cooling Administered by R. Aiello	S	
g. CAD to Drywell Control Air	S	
h. Bypassing Radiation Monitors on Work Station Touch Screen Administered by R. Aiello	S	
Systems - In-Plant		
i. Removal of RPS Scram Fuses Administered by R. Aiello	S	
j. Stuck Open SRV	S	
k. SSI Operator Manual Actions Administered by R. Aiello	S	

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Ex 6

Applicant Docket Number (b)(6)					
Reactor Operator Simulator Operating Test Grading Details					
Competencies/ Rating Factors (RFs)	RF Weights	RF Scores	RF Grades	Comp. Grades	Comment Page No.
1. Interpretation/Diagnosis					
a. Recognize & Verify Status	0.40	3	1.20	3.00	
b. Interpret & Diagnose Conditions	0.30	3	0.90		
c. Prioritize Response	0.30	3	0.90		
2. Procedures/Tech Specs					
a. Reference	0.30	3	0.90	3.00	
b. Procedure Compliance	0.40	3	1.20		
c. Tech Spec Entry	0.30	3	0.90		
3. Control Board Operations					
a. Locate & Manipulate	0.40	3	1.20	3.00	
b. Understanding	0.30	3	0.90		
c. Manual Control	0.30	3	0.90		
4. Communications					
a. Provide Information	0.34	3	1.02	3.00	
b. Receive Information	0.33	3	0.99		
c. Carry Out Instructions	0.33	3	0.99		

[Note: Enter RF Weights (nominal, adjusted, or "0" if not observed (N/O)), RF Scores (1, 2, 3, or N/O), and RF Grades from Form ES-303-3 and sum to obtain Competency Grades.]

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Ex 6

APPLICANT DOCKET NUMBER

(b)(6)

CROSS REFERENCE:

Admin "c"

JPM/TASK:

Determination of Isolation Boundary for Reactor Feed Pump Turbine (RFPT) Seal Injection Pump 2B or 3B

EXPECTED ACTION/RESPONSE:

The applicant was expected to determine the components that shall be identified to isolate RFPT Seal Injection Pump 3B. This step was critical.

APPLICANT ACTION/RESPONSE:

The applicant correctly identified all of the "Critical Step" components and their associated positions necessary to isolate RFPT Seal Injection Pump 3B (i.e., Valves 3-SHV-3-580 and -582 and Pump 3B Power Supply Breaker 3-BKR-3-89). However, the applicant failed to consider the Raw Cooling Water supply to the Seal Water Cooler until he was questioned about it after the JPM was completed. In response to the question, the applicant identified Valves 3-SHV-24-635B, -636B, and -637B as potential isolation points. The applicant passed this JPM because he completed all of the critical steps.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in his ability to identify all the applicable valves to completely isolate the RFPT Seal Injection Pump.

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Ex 6

APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

Systems - Control Room "e"

JPM/TASK:

U-000-SS-25, Energize 4 Kilovolt (KV) Shutdown (SD) Boards (BDs) A, C, and D from Unit 3 Diesel Generators (DGs)

EXPECTED ACTION/RESPONSE:

The applicant was expected to energize 4 KV SD BDs A and C from Unit 3 DGs during a Unit 1 and 2 Diesel Generator Building Fire in accordance with Attachment 6 of Procedure 0-SSI-20, Rev. 0005. The applicant was also expected to respond to Alarm 9-23D WIN 4 (DIESEL GEN D LUBE OIL ABNORMAL) per the Alarm Response Procedure (ARP), verify the "LOW LOW OIL PRESSURE" AMBER LIGHT was lit, and shut down the DG 3D using the DG 3D Emergency Stop Pushbutton. This step was critical.

APPLICANT ACTION/RESPONSE:

The applicant correctly completed Procedure 0-SSI-20, Rev. 0005, Attachment 6, Steps 1.0 [2] and [3] and energized 4 KV SD BDs A and C. However, upon performing Step 1.0 [4.1], "VERIFY DG 3D CONTROL Switch, 3-HS-82-3D/1A, in START," the applicant failed to recognize that Alarm 9-23D WIN 4 (DIESEL GEN D LUBE OIL ABNORMAL) had activated and the "LOW LOW OIL PRESSURE" AMBER LIGHT was lit. Thus, the applicant failed to shut down DG 3D as directed by the ARP for Alarm 9-23 WIN 4 (critical). The applicant continued performing Steps [4.2] through [5] of Procedure 0-SSI-20, Attachment 6, and notified the Unit Supervisor that Section 1.0 of Attachment 6 was complete. Upon confirming that the applicant was satisfied that he had completed the JPM's directed task, the applicant was asked, as a post JPM question, if there was anything amiss on Panels 3-9-23 A, C, or D (excluding that he manually closed DG 3D BKR 1836 when it did not automatically close). The applicant first noted that there was a difference in Kilowatt (KW) loading between the 3 running DGs. Then, after further review, he noted the "LOW LOW OIL PRESSURE" AMBER LIGHT was lit and stated that he should have tripped DG 3D using the DG 3D Emergency Stop Pushbutton. The applicant failed this JPM because he failed to secure the faulted 3D DG which was a critical step.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in the ability to recognize indications of a low lube oil pressure condition following start of DG 3D and take the necessary corrective actions.

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APPLICANT DOCKET NUMBER (b)(6)

U.S. Nuclear Regulatory Commission
Individual Examination Report

Applicant's Name: (b)(6) Docket Number: (b)(6) Ex 6

I	R	Examination Type (Initial or Retake)	Facility Name: Turkey Point
		Reactor Operator	Facility Description X Hot Cold BWR X PWR
X		Senior Reactor Operator (SRO) Instant	
		SRO Upgrade	
		SRO Limited to Fuel Handling	

Written Examination Summary

NRC Author/Reviewer: NA	RO/SRO/Total Exam Points NA
NRC Grader/Reviewer: NA	Applicant Points NA
Date Administered: NA	Applicant Grade (%) NA

Operating Test Summary

Administered by: P. Capehart	Date Administered: March 4, 2011
Walk-Through (Overall)	W
Administrative Topics	S
Simulator Operating Test	W

Examiner Recommendations

Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination			X		
Operating Test	X			Philip G. Capehart	3/9/11
Final Recommendation	X			Mark Bates	3/1/2011

License Recommendation

X	Issue License	Malcolm T. Widmann 	Date
	Deny License		03/09/11

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APPLICANT DOCKET NUMBER (b)(6)

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Applicant Docket Number: (b)(6)		
Walk-Through Grading Details	Evaluation (S or U)	Comment Page Number
Administrative Topics		
a. Determine License Status (Active/Inactive)	S	
b. Maintain Operations Key Log	S	
c. Review Boric Acid Pump Discharge Valve Clearance	S	
d. Determine the Airborne Activity Dose Rate	S	
e. Classify Event and Determine PARS	S	
Systems - Control Room (Waived)		
a.		
b.		
c.		
d.		
e.		
f.		
g.		
h.		
Systems - In-Plant (Waived)		
i.		
j.		
k.		

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APPLICANT DOCKET NUMBER (b)(6)

U.S. Nuclear Regulatory Commission
Individual Examination Report

Applicant's Name: (b)(6) Docket Number (b)(6)

I	R	Examination Type (Initial or Retake)	Facility Name: Catawba
		Reactor Operator	X Hot
		Senior Reactor Operator (SRO) Instant	Cold
	X	SRO Upgrade	BWR
		SRO Limited to Fuel Handling	X PWR

Ex 6

Written Examination Summary

NRC Reviewer: Edwin Lea, Jr.	RO/SRO/Total Exam Points 74 / 24 / 98
NRC Grader/Reviewer: Edwin Lea, Jr.	Applicant Points 65 / 17 / 82
Date Administered: December 21, 2010	Applicant Grade (%) 87.83 / 70.83 / 83.67

Operating Test Summary

Administered by:	Date Administered:
Walk-Through (Overall)	W
Administrative Topics	W
Simulator Operating Test	W

Examiner Recommendations

Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination	X			Edwin Lea, Jr.	1/27/2011
Operating Test			X	Richard S. Baldwin	1/27/2011
Final Recommendation	X			Edwin Lea, Jr.	1/27/2011

License Recommendation

✓	Issue License	Supervisor's Signature	Date
	Deny License	Malcolm T. Widmann	01/27/10

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APPLICANT DOCKET NUMBER (b)(6)

U.S. Nuclear Regulatory Commission Individual Examination Report					
Applicant's Name: (b)(6)			Docket Number (b)(6)		
I	R	Examination Type (Initial or Retake)	Facility Name: Catawba		
		Reactor Operator	Facility Description	X	Hot
		Senior Reactor Operator (SRO) Instant			Cold
	X	SRO Upgrade			BWR
		SRO Limited to Fuel Handling		X	PWR

Written Examination Summary					
NRC Reviewer: Edwin Lea, Jr.			RO/SRO/Total Exam Points 74 / 24 / 98		
NRC Grader/Reviewer: Edwin Lea, Jr.			Applicant Points 68 / 19 / 87		
Date Administered: December 21, 2010			Applicant Grade (%) 91.89 / 79.16 / 88.77		
Operating Test Summary					
Administered by: N/A			Date Administered:		
Walk-Through (Overall)					W
Administrative Topics					W
Simulator Operating Test					W
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination	X			Edwin Lea, Jr.	1/27/2011
Operating Test			X	Richard S. Baldwin	1/27/2011
Final Recommendation	X			Edwin Lea, Jr.	1/27/2011
License Recommendation					
✓	Issue License	Supervisor's Signature			Date
	Deny License	Malcolm T. Widmann			01/27/11

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Ex 6

U.S. Nuclear Regulatory Commission Individual Examination Report					
Applicant's Name: (b)(6)			Docket Number: (b)(6)		
I	R	Examination Type (Initial or Retake)	Facility Name: Sequoyah 1 & 2		
		Reactor Operator	Facility Description	X	Hot
X		Senior Reactor Operator (SRO) Instant			Cold
		SRO Upgrade			BWR
		SRO Limited to Fuel Handling		X	PWR

Ex 6

Written Examination Summary					
NRC Author/Reviewer: R. Baldwin			RO/SRO/Total Exam Points 75 / 25 / 100		
NRC Grader/Reviewer: R. Baldwin			Applicant Points 64 / 23 / 87		
Date Administered: 9/29/2010			Applicant Grade (%) 85.33 / 92.00 / 87.00		
Operating Test Summary					
Administered by: R. Monk			Date Administered: 9/13 - 22 / 2010		
Walk-Through (Overall)					U
Administrative Topics					U
Simulator Operating Test					S
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination	X			Richard S. Baldwin	12/03/2010
Operating Test		X		Robert L. Monk	12/06/2010
Final Recommendation		X		Richard S. Baldwin	12/07/2010
License Recommendation					
	Issue License	Malcolm T. Widmann			Date 12/09/10
✓	Deny License				

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Ex 6

Applicant Docket Number: (b)(6)		
Walk-Through Grading Details	Evaluation (S or U)	Comment Page Number
Administrative Topics		
a. Evaluate Overtime Restrictions (Administered by C. Kontz)	U	4
b. Review of Estimated Critical Position Calculation (Administered by C. Kontz)	U	5
c. Review and Approve A Disabled Alarm Checklist (Administered by C. Kontz)	S	
d. Evaluate Worker Exposure (Administered by C. Kontz)	S	
e. Classify the Event Per the REP. (Administered by C. Kontz)	U	6,7
Systems - Control Room		
a. Shutdown Bank Withdrawal, (Administered by C. Kontz)	S*	8
b. Refill # 3, Cold leg Accumulator to within Normal Range (Administered by R. Baldwin)	S	
c. Return PRT to Normal (Administered by R. Baldwin)	S	
d. Respond to Loss of Flow to RCP Oil Cooler (Administered by R. Baldwin)	U	9,10
e. Respond to HI CNMT Pressure, Place RHR Spray in Service (Administered by R. Baldwin)	S	
f. Calibrate Power Range NIs (Administered by R. Baldwin)	S	
g. Initiate Makeup to the Refueling Cavity (Administered by C. Kontz)	S	
h. N/A	-	
Systems - In-Plant		
i. Spare out a Vital Battery Charger (Administered by C. Kontz)	S	
j. Local control of MD AFW pump flow (Administered by C. Kontz)	S	
k. Local alignment of 2-RM-90-112 to lower (Administered by C. Kontz)	S	

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Applicant Docket Number: (b)(6)					
Senior Reactor Operator Simulator Operating Test Grading Details					
Competencies/ Rating Factors (RFs)	RF Weights	RF Scores	RF Grades	Comp. Grades	Comment Page No.
1. Interpretation/Diagnosis					
a. Recognize & Attend	0.20	3	0.60	2.70	11
b. Ensure Accuracy	0.20	3	0.60		
c. Understanding	0.30	3	0.90		
d. Diagnose	0.30	2	0.60		
2. Procedures					
a. Reference	0.30	3	0.90	3.00	
b. EOP Entry	0.30	3	0.90		
c. Correct Use	0.40	3	1.20		
3. Control Board Operations					
a. Locate & Manipulate	0.34	3	1.02	2.67	12
b. Understanding	0.33	3	0.99		
c. Manual Control	0.33	2	0.66		
4. Communications					
a. Clarity	0.40	3	1.20	3.00	
b. Crew & Others Informed	0.40	3	1.20		
c. Receive Information	0.20	3	0.60		
5. Directing Operations					
a. Timely & Decisive Action	0.30	2	0.60	2.70	13
b. Oversight	0.30	3	0.90		
c. Solicit Crew Feedback	0.20	3	0.60		
d. Monitor Crew Activities	0.20	3	0.60		
6. Technical Specifications					
a. Recognize and Locate	0.40	3	1.20	3.00	
b. Compliance	0.60	3	1.80		

[Note: Enter RF Weights (nominal, adjusted, or "0" if not observed (NO)), RF Scores (1, 2, 3, or NO), and RF Grades from Form ES-303-4 and sum to obtain Competency Grades.]

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

CROSS REFERENCE:

Administrative Topic—a.

JPM/TASK:

Evaluate Overtime Restrictions

EXPECTED ACTION/RESPONSE:

The applicant was expected to evaluate a work schedule and determine that on two occasions, the Fatigue Rule requirements were exceeded and required "Overtime Limitation Exception Report" to be completed. The applicant was expected to identify that an Overtime Limitation Exception Report was required prior to completing the 05/30/10 shift to allow for exceeding the 26 hours in a 48 hour period. The applicant was also expected to identify that an "Overtime Limitation Exception Report" was required prior to completing the 06/04/10 shift to allow for exceeding the 72 hours in a 7 day period. Determining an "Overtime Limitation Exception Report" was required prior to completing the 05/30/10 shift to allow for exceeding the 26 hours in a 48 hour period was a critical step for successful completion of this task

APPLICANT ACTION/RESPONSE:

The applicant correctly determined that an "Overtime Limitation Exception Report" was required prior to completing the 06/04/10 shift to allow for exceeding the 72 hours in a 7 day period but failed to determine that an "Overtime Limitation Exception Report" was required prior to completing the 05/30/10 shift to allow for exceeding the 26 hours in a 48 hour period.

LACK OF ABILITY/KNOWLEDGE:

The applicant's performance was graded as unsatisfactory. The applicant demonstrated a lack of knowledge of shift staffing requirements concerning overtime limitations for fatigue management. Specifically, the applicant failed to identify a condition that required an "Overtime Limitation Exception Report."

CONSEQUENCES:

The failure to correctly identify operators who have exceeded work hour limitations could allow operators suffering from the effects of fatigue to be allowed to perform licensed duties without evaluations to ensure their fitness for duty.

K/A: G 2.1.5 - Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc.

10 CFR 55.45.12 Demonstrate the knowledge and ability as appropriate to the assigned position to assume the responsibilities associated with the safe operation of the facility.

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APPLICANT DOCKET NUMBER (b)(6)

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CROSS REFERENCE:

Administrative Topic—b.

JPM/TASK:

Review ECP Calculation

EXPECTED ACTION/RESPONSE:

The applicant was expected to review a completed 0-SI-NUC-000-001.0, "Estimated Critical Conditions," Appendix B, Data Sheet 2, "ECC Calculation," and identify errors. The applicant was expected to interpolate data using NDR, Table 6-32, Hot Zero Power (HZIP) Integral Rod Worth (No Xe), to determine the ECP was incorrect and the correct ECP was 138 steps on Control Bank D. Determining the correct ECP was a critical step for successful completion of this JPM.

APPLICANT ACTION/RESPONSE:

The applicant correctly determined that the Xenon worth for the ECC was zero. The applicant incorrectly interpolated data between NDR, Table 6-32, HZIP Integral Rod Worth (No Xe) and NDR, Table 6-33, HZIP Integral Rod Worth (Peak Xe), to determine an ECP of 150 steps on Control Bank D. The applicant determined rod heights for Xe free conditions (138 steps) and Peak Xe conditions (162 steps) and averaged the two rod heights for a final ECP of 150 steps.

LACK OF ABILITY/KNOWLEDGE:

The applicant's performance was graded as unsatisfactory. The applicant demonstrated a lack of ability to correctly determine an estimated critical position and a lack of knowledge of core conditions during reactor startup and the effects of xenon concentration on rod position. Specifically, the applicant did not understand how to use integral rod worth tables for different core conditions and was unable to determine the correct critical rod height for a xenon free start up.

CONSEQUENCES:

The failure to correctly calculate an estimated critical position can result in reactor startup being performed under unexpected conditions, exhibiting behavior contrary to that expected by operators.

K/A: A4.10 Determination of an ECP

10CFR55.45.12: Demonstrate the knowledge and ability as appropriate to the assigned position to assume the responsibilities associated with the safe operation of the facility.

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APPLICANT DOCKET NUMBER (b)(6)**CROSS REFERENCE:**

Administrative Topic—e.

JPM/TASK:

Classify the Event Per the REP

EXPECTED ACTION/RESPONSE:

The applicant was expected to evaluate a given set of plant conditions, determine the Emergency Classification, and correctly fill out a TVA Initial Notification of General Emergency for the event. The applicant was expected to perform the following when completing the TVA Initial Notification of General Emergency per EPIP-5, "General Emergency," Rev. 39:

- List the correct EAL designators applicable to the event (Loss 1.1.2, Loss 1.2.3, and Loss 1.3.4) in line 3.
- Mark the correct status of Airborne and Liquid releases off site.
 - Both conditions should have been marked as "Release information not known" because no information was provided indicating off site radiological conditions but there was enough information for the applicant to determine that a release was in progress.
- Determine the appropriate Meteorological Conditions from the 46 meter tower and enter the data on line 7 of the notification form.
 - 15 Min Average of Wind Direction 231 degrees
 - 15 Min Average of Wind Speed 6.3 mph
- Determine the correct Protective Action Recommendation and indicate the appropriate actions and affected sectors on the notification form.
 - Recommendation 2
 - Sectors A-1, B-1, C-1, D-1, B-2, AND B-5

Properly completing the "TVA Initial Notification of General Emergency" critical to the successful completion of this JPM (a critical step).

APPLICANT ACTION/RESPONSE:

The applicant improperly completed the TVA Initial Notification of General Emergency per EPIP-5, "General Emergency," Rev. 39 as follows:

- The applicant improperly listed the applicable EAL designators for the event. The applicant indicated a "Potential Loss of the Fuel Clad Barrier," 1.1.2, "Loss of the RCS Barrier 1.2.3," and "Loss of the Containment Barrier," 1.3.4) on line 3.
- The applicant improperly indicated the status of Airborne and Liquid releases off site.
 - The applicant indicated that both Airborne and Liquid Releases were "Minor releases within federally approved limits" even though there was no information provided to the applicant indicating off site radiological conditions.
- The applicant improperly recorded Meteorological Conditions by using wind speed and direction from the 91 meter tower. The applicant recorded the following data on line 7 of the notification form.
 - Instantaneous Wind Direction of 226 degrees

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APPLICANT DOCKET NUMBER (b)(6)

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- o Instantaneous Wind Speed of 5.7 mph
- The applicant failed to indicate a Protective Action Recommendation on the notification form.

During follow-up questioning the applicant was asked about her basis for selecting the Radiological Conditions on the notification form. The applicant explained that because "there could be a leak no one told her about" in progress that it was appropriate to indicate that a liquid release was in progress.

Additionally the applicant was asked about her basis for using the 91 meter tower for recording Meteorological Conditions and explained that you "always choose the highest tower".

LACK OF ABILITY/KNOWLEDGE:

The applicant's performance was graded as unsatisfactory. The applicant demonstrated a lack of knowledge and ability associated with taking actions for performing notifications per the site emergency plan. Specifically, the applicant failed to perform the following; listing the correct EAL designators, marking the correct status of Airborne and Liquid releases off site, recording the correct Meteorological Conditions, and recording the correct Protective Action Recommendation on TVA Initial Notification of General Emergency.

CONSEQUENCES:

Failing to provide complete and accurate information on event notification forms can directly affect the response actions taken to protect the health and safety of public.

K/A: G 2.4.38: Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required.

10CFR55.45.11: Demonstrate knowledge of the emergency plan for the facility, including, as appropriate, the operator's or senior operator's responsibility to decide whether the plan should be executed and the duties under the plan assigned.

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APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

Simulator Topic—a.

JPM/TASK:

Shutdown Banks Withdrawal

EXPECTED ACTION/RESPONSE:

The applicant was expected to perform a withdrawal of Shutdown Bank "A" rods to 228 steps IAW 0-SO-85-1, "Control Rod Drive System." During withdraw of Shutdown Bank "A" rods to the 228 steps, the applicant was expected to recognize that two rod bottom lights (M2 and L5) illuminated and the rods dropped fully into the core. The applicant was expected to manually insert a reactor trip signal by turning switch 1-RT-1 on 1-M-4 or switch 1-RT-2 on 1-M-6 to the TRIP position in accordance with AOP C.01, "Rod Control System Malfunctions."

APPLICANT ACTION/RESPONSE:

During withdraw of Shutdown Bank "A" rods to the 228 steps, the applicant recognized that two rod bottom lights (M2 and L5) illuminated and the rods had dropped fully into the core. The applicant inserted a reactor trip signal but announced she was tripping the reactor because it was "the conservative thing to do when less than 5 percent power".

During follow-up questioning, the applicant was asked if tripping the reactor was a required action and the applicant responded that she did not know if it was required but she felt that taking conservative action was appropriate. The applicant was also asked what the requirements were to take prudent operator action. The applicant could not explain the requirements defined in EPM-4 for taking prudent operator actions.

LACK OF ABILITY/KNOWLEDGE:

Although the applicant completed the critical steps required to complete this JPM, the applicant displayed a deficient understanding of the basis for taking operator actions and conditions requiring a reactor trip.

CONSEQUENCES:

Failing to trip the reactor when required by procedure could allow plant operations outside of design basis and establish unanalyzed pre-event conditions; rendering mitigating systems unable to prevent core damage in the event of an accident.

K/A: 001 Control Rod Drive System A2.11 Situations requiring a reactor trip

10CFR55.46.3: Identify annunciators and condition-indicating signals and perform appropriate remedial actions where appropriate

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

CROSS REFERENCE:

Systems Control Room JPM—d.

JPM/TASK:

Respond to Loss of Flow to RCP Oil Cooler

EXPECTED ACTION/RESPONSE:

The applicant was expected to monitor the main control board and take action(s), as necessary, to any abnormalities that would occur. The applicant was expected to identify that a loss of cooling water flow to ONLY the RCP # 2 oil cooler occurred. Based on this, the applicant was expected to identify that the upper radial bearing temperature was increasing and entry into procedure, AOP-R.04, "Reactor Coolant Pump Malfunctions," was warranted to mitigate this failure. The applicant was expected to trip the reactor (JPM Step 7, a critical step), trip the # 2 RCP (JPM Step # 8, a critical step) and then Close the affected loop's pressurizer spray valve (JPM Step 13, a critical step).

APPLICANT ACTION/RESPONSE:

During the performance of this JPM the applicant vocalized her actions to the examiner. When evaluation of Component Cooling CCW flow thru the RCP upper and lower oil coolers, at approximately 4 minutes into the JPM, the applicant stated that the all the temperatures are green. The applicant identified that upper radial bearing temperature was approximately 168.2°F and almost steady, however, the upper radial temperature was, in fact, slowly increasing. The applicant did not look at this temperature again during JPM performance.

Because of the applicant's behavior, it was apparent to the examiner that, the applicant did not know what action(s) she should take (she kept on looking at the board and the examiner without performing any actions and/or informing or verbalizing anything to the examiner). The applicant then reviewed a number of alarm response procedures and verbalized, at approximately five minutes into JPM and stated that she "does not have to go to AOP-R.04." It was at this point the applicant incorrectly proceeded to AOP-M.03, "Loss of Component Cooling Water," Section 2.3.

As the applicant took actions in AOP-M03 she directed the Auxiliary Unit Operator (AUO) to look for system failures and to see if the "A" CCW header was ruptured. Additionally, she directed the AUO to perform Appendix A, "OPERATION OF APP. R VALVES required by SECTION 2.3, "TRAIN A CCS HEADER FAILURE." As the applicant proceeded thru AOP-M.03, SECTION 2.3 and upon starting Step 8, (which required monitoring the reactor building header flow as being NORMAL, in which, it was expected to be greater than 800 gpm), the applicant identified that flow was less than 800 gpm and proceeded to the Response Not Obtained (RNO) column and followed the directions to trip the reactor and then tripped all four RCPs. As the applicant proceeded thru Step 8, RNO, the applicant then came to RNO 8.e. and proceeded to isolate the following valves, 1-FCV-70-139, "RCP Oil Cooler Header Containment Isol," 1(2)-FCV-70-139, "RCP Oil Cooler Header Containment Iso," 1(2)-FCV-70-143, "Excess Ldwn HX Supply Containment Iso," 1(2)-FCV-70-92, "RCP Oil Cooler Return Containment Isol," 1(2)-FCV-70-89, "RCP Oil Cooler Return Containment Isol," and 1(2)-FCV-70-85, "Excess Letdown HX Outlet Isolation."

At approximately nine minutes, annunciator, 5B-E-3, "Reactor Coolant Pumps Thrust Bearing

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APPLICANT DOCKET NUMBER (b)(6)

Temp HI," came in. This alarm comes in with temperature increasing above 180°F. The applicant continued on in AOP-M.03

During follow-up questioning the applicant was asked to provide her reasoning for the procedural selection used during the JPM. The applicant stated that Rx Building flow was lower than normal and that she initially thought it was going to be a straight shot to AOP-R-0.4, however, the temperature was at 162°F and was way less than 200°F and it was not rising. Examiner Note: The time at which the applicant looked at the temperatures the temperatures were actually going up slowly. The applicant never looked at this temperature again after she first identified it rising. The applicant stated that it "dawned on me that since the header was low, it took me a minute to decide how to go."

LACK OF ABILITY/KNOWLEDGE:

The applicant lacked the ability to analyze plant conditions and select the correct abnormal procedure to correct or mitigate the problem. The applicant exhibited a lack of familiarity of what procedures and what parameters were needed, in this case, to evaluate RCP parameters and carry out these actions to trip the affected RCP and close its associated loop's pressurizer spray valve. The applicant unnecessarily tripped ALL RCPs and did not close the affected RCPs spray valve, a critical step. The applicant did not identify a loss of CCW to only one RCP and unnecessarily and incorrectly tripped ALL RCPs, placing the unit in natural circulation cooldown rather than a force flow cooldown. Additionally, the applicant unnecessarily closed containment isolation valves to pumps that did not have to be closed, further complicating the event.

The applicant received a grade of "Unsatisfactory" in this JPM because of her errors (failure of a critical step), being unfamiliar with plant procedures, and unnecessary isolation of equipment.

CONSEQUENCES:

Failure to follow procedures and knowledge of requirements for reactor plant shutdown as well as securing RCPs resulted in a loss of all forced cooling, requiring the plant to have to rely upon natural circulation cooldown for heat removal.

K/A: APE 015/017AA2.07: Ability to determine and interpret the following as they apply to the RCP Malfunctions (Loss of RC flow): When to secure RCPs on high bearing temperature.

3.4/3.5

10CFR55.45.6: Perform control manipulations required to obtain desired operating results during normal, abnormal, and emergency situations.

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

CROSS REFERENCE:

Simulator Competency No. 1 - Rating Factor d: Interpretation/Diagnosis – Diagnose

SCENARIO/EVENT:

Scenario No. 3 / Event No. 4: PT-1-33, "Main Steam Header Pressure Transmitter," Low Failure

EXPECTED ACTION/RESPONSE:

The applicant, as SRO, was expected to diagnose the effects of the failure low of Main Steam Header Pressure Transmitter, PT-1-133, direct the BOP to take manual control of the "A" Main Feed Pump speed control, raise feed flow rate in a controlled manner to maintain steam generators in their normal level band.

APPLICANT ACTION/RESPONSE:

The applicant failed to diagnose the effects of the failure of PT-1-133 on the main feed pump control circuitry and provide direction to the BOP to take manual control of the "A" main feed pump speed control resulting in a manual reactor trip.

LACK OF ABILITY/KNOWLEDGE:

The applicant's score was downgraded to a "2" for this competency because she demonstrated a weakness in her ability to diagnose plant conditions from diverse indications and formulate an appropriate response to direct mitigation of plant transients induced by failed equipment.

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

CROSS REFERENCE:

Simulator Competency No. 3 - Rating Factor c: Control Board Operations – Manual Control

SCENARIO/EVENT:

Scenario No. 6 / Event No. 4: 1A Main Feed Pump High Vibration

EXPECTED ACTION/RESPONSE:

The applicant, as RO, was expected to reduce power per AOP-C.0.3, "Rapid Shutdown or Load Reduction."

APPLICANT ACTION/RESPONSE:

The applicant received instructions from the SRO to maintain the Tave-Tref mismatch less than 5 degrees Fahrenheit during the down power. The applicant, as RO, exceeded these limits. When asked what actions should have been taken given the magnitude of mismatch, she said that she probably should have tripped the unit.

LACK OF ABILITY/KNOWLEDGE:

The applicant's score was downgraded to a "2" for this competency because she demonstrated a weakness in her ability to manually control reactor temperature during a power change.

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APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

Simulator Competency No. 5 - Rating Factor a: Directing Operations - Timely and Decisive Action

SCENARIO/EVENT:

Scenario No. 3 / Event No. 4: PT-1-33, "Main Steam Header Pressure Transmitter," Low Failure

EXPECTED ACTION/RESPONSE:

Given that the reactor had to be tripped due to low steam generator levels, the applicant, as SRO, was expected to provide timely and decisive action to ensure that the BOP did not overfeed the steam generators and significantly cooldown the reactor.

APPLICANT ACTION/RESPONSE:

The applicant failed to demonstrate timely and decisive actions to direct the BOP to not significantly overfeed the steam generators. The SRO was preoccupied in finding the appropriate procedure to use when the BOP overfed the steam generators which resulted in cooling down and depressurizing the reactor to the point that the SRO decided to manually Safety Inject following the Reactor Trip.

During follow-up questioning the applicant was asked if there was an RCS leak of a magnitude requiring a Safety Injection, she said there may have been a small leak and she probably should have gone to procedure AOP-R.05, "RCS Leak and Leak Source Identification," but that a Safety Injection was conservative.

LACK OF ABILITY/KNOWLEDGE:

The applicant's score was downgraded to a "2" for this competency because she demonstrated a weakness in her ability to take timely and decisive actions to prevent incorrect operations that caused a transient which resulted in a reactor trip and safety injection.

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U.S. Nuclear Regulatory Commission
Individual Examination Report

Applicant's Name: (b)(6) Docket Number: (b)(6) Ex 6

I	R	Examination Type (Initial or Retake)	Facility Name: Sequoyah 1 & 2
		Reactor Operator	X Hot
	X	Senior Reactor Operator (SRO) Instant	Cold
		SRO Upgrade	BWR
		SRO Limited to Fuel Handling	X PWR

Written Examination Summary

NRC Author/Reviewer: R. Baldwin	RO/SRO/Total Exam Points 75 / 25 / 100
NRC Grader/Reviewer: R. Baldwin	Applicant Points 68 / 22 / 90
Date Administered: 9/29/2010	Applicant Grade (%) 90.66 / 88.00 / 90.00

Operating Test Summary

Administered by: N/A	Date Administered: N/A
Walk-Through (Overall)	W
Administrative Topics	W
Simulator Operating Test	W

Examiner Recommendations

Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination	X			<i>Richard S. Baldwin</i> Richard S. Baldwin	12/03/2010
Operating Test			X		
Final Recommendation	X			<i>Craig R. Korte</i> Craig R. Korte	12/03/2010

License Recommendation

<input checked="" type="checkbox"/>	Issue License	Malcolm T. Widmann <i>Malcolm T. Widmann</i>	Date
<input type="checkbox"/>	Deny License		12/09/10

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Ex6

U.S. Nuclear Regulatory Commission Individual Examination Report					
Applicant's Name: (b)(6)			Docket Number: (b)(6)		
I	R	Examination Type (Initial or Retake)	Facility Name: Turkey Point		
		Reactor Operator		X	Hot
X		Senior Reactor Operator (SRO) Instant	Facility Description		Cold
		SRO Upgrade			BWR
		SRO Limited to Fuel Handling		X	PWR

Ex6

Written Examination Summary					
NRC Author/Reviewer: Bruno Caballero			RO/SRO/Total Exam Points 75 / 25 / 100		
NRC Grader/Reviewer: Mark Riches			Applicant Points 62 / 20 / 82		
Date Administered: 11/10/10			Applicant Grade (%) 82.66 / 80.00 / 82.00		
Operating Test Summary					
Administered by: Bruno Caballero			Date Administered: October 25 – 29, 2010		
Walk-Through (Overall)					S
Administrative Topics					U
Simulator Operating Test					S
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination	X			Bruno Caballero for Mark Riches	12/2/10
Operating Test		X		Bruno Caballero	12/2/10
Final Recommendation		X		R. J. G. 1. 90116	12/2/10
License Recommendation					
	Issue License	Malcolm T. Widmann			Date
X	Deny License				12/02/10

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Ex 6

Applicant Docket Number: (b)(6)		
Walk-Through Grading Details	Evaluation (S or U)	Comment Page Number
Administrative Topics		
a. Determine Shift Manning Requirements (Administered by Mark Riches)	U	4, 5
b. Required Contingency Actions During Reduced Inventory (Administered by Mark Riches)	U	6, 7
c. Determine Required Action for CCW Test	U	8, 9
d. Determine Dose Rate, Limit, and number of people	S	
e. Classify the Event and Determine PARS	S	
Systems - Control Room		
a. Respond to a Rod Control Failure (Administered by Tim Kolb)	S	
b. Place Excess Letdown in service (Administered by Tim Kolb)	S	
c. Align Safety Injection for Hot Leg Recirc (Administered by Tim Kolb)	S	
d. Respond to Loss of RHR (Administered by Tim Kolb)	S	
e. Restart Containment Normal Coolers (Administered by Tim Kolb)	S	
f. n/a	n/a	
g. Place N-42 Power Range Drawer in service	S	
h. Shutdown Containment Purge	S	
Systems - In-Plant		
i. Recover from a Unit 4 EDG Auto-start failure (Administered by Mark Riches)	S	
j. Control SG Level Locally (Administered by Mark Riches)	S	
k. Perform Gaseous Radwaste Release (SNPO) (Administered by Mark Riches)	S	

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Ex 6

Applicant Docket Number: (b)(6)					
Senior Reactor Operator Simulator Operating Test Grading Details					
Competencies/ Rating Factors (RFs)	RF Weights	RF Scores	RF Grades	Comp. Grades	Comment Page No.
1. Interpretation/Diagnosis					
a. Recognize & Attend	0.20	3	0.60	3.00	
b. Ensure Accuracy	0.20	3	0.60		
c. Understanding	0.30	3	0.90		
d. Diagnose	0.30	3	0.90		
2. Procedures					
a. Reference	0.30	3	0.90	3.00	
b. EOP Entry	0.30	3	0.90		
c. Correct Use	0.40	3	1.20		
3. Control Board Operations					
a. Locate & Manipulate	0.34	2	0.68	2.68	10, 11
b. Understanding	0.33	3	0.99		
c. Manual Control	0.33	3	0.99		
4. Communications					
a. Clarity	0.40	3	1.20	3.00	
b. Crew & Others Informed	0.40	3	1.20		
c. Receive Information	0.20	3	0.60		
5. Directing Operations					
a. Timely & Decisive Action	0.30	1	0.30	2.40	12, 13
b. Oversight	0.30	3	0.90		
c. Solicit Crew Feedback	0.20	3	0.60		
d. Monitor Crew Activities	0.20	3	0.60		
6. Technical Specifications					
a. Recognize and Locate	0.40	3	1.20	2.40	14, 15
b. Compliance	0.60	2	1.20		

[Note: Enter RF Weights (nominal, adjusted, or "0" if not observed (N/O)), RF Scores (1, 2, 3, or N/O), and RF Grades from Form ES-303-4 and sum to obtain Competency Grades.]

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APPLICANT DOCKET NUMBER (b)(6)

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CROSS REFERENCE:

Administrative Topic "a"

JPM/TASK:

Determine Shift Manning Requirements

EXPECTED ACTION/RESPONSE:

The applicant was expected to evaluate the operations personnel (listed below) and then identify the following items, including any reasons, to the examiner:

- **Technical Specifications (Tech Specs):** The auxiliary operator requirements for Tech Spec 6.2.2, Plant Staff, were NOT met because an additional Nuclear Plant Operator (NPO), a.k.a. Turbine Operator (TO), was needed to satisfy the Unit 3 and Unit 4 assignments. (critical step)
- **0-ONOP-105, Control Room Evacuation:** Attachment 6, Non-Fire Brigade Nuclear Plant Operator, was NOT allowed to be assigned to a fire brigade member or to the Associate Nuclear Plant Operator (ANPO) (James). (critical step)
- **0-ADM-16.2, Fire Brigade:** The requirements for Operations' contribution to the site fire brigade were NOT met and an NPO operator was not allowed to be simultaneously assigned to both the fire brigade and ONOP-105 Attachment 6. (critical step)

Qualifications or Licenses Held

Operators	Fire Brigade	Fire Brigade Leader	SNPO	ANPO	TO	Qualifying	Shift Manager	Unit Supervisor	Reactor Operator	STA Licensed
Barney							✓			
Bosch								✓		
Chester								✓		
Furthermore								✓		✓
Owens									✓	
Garza									✓	
Hoffman									✓	
Klink		✓						✓ (FS)		
James				✓						
Marino			✓							
Robertson	✓				✓					
Wade			✓							
Woods						✓				

APPLICANT ACTION/RESPONSE:

After the applicant had completed the JPM, the examiner asked the applicant to explain his determinations of whether the shift manning, 0-ONOP-105, and fire brigade staffing

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requirements were met. The applicant correctly determined that the Tech Spec 6.2.2 requirements were not met because an additional Nuclear Power Operator (NPO) was needed to satisfy the Unit 3 and Unit 4 assignments. The applicant also correctly determined that the Operations fire brigade requirements were not met because an additional operator with Fire Brigade qualifications was needed to meet the fire brigade staffing requirements in accordance with O-ADM-16.2. However, the applicant stated that he had assigned the ANPO (James) to perform Attachment 6. The examiner then asked the applicant whether he was allowed to assign the ANPO (James) to a O-ONOP-105 position. The applicant stated that he would change this assignment to a Nuclear Plant Operator (NPO) as soon as a qualified NPO became available. The examiner asked the applicant if there was written guidance that allowed the ANPO (James) to be temporarily assigned to Attachment 6. The applicant stated that he did not know which procedure provided guidance that allowed the ANPO (James) to be temporarily assigned to Attachment 6.

LACK OF ABILITY/KNOWLEDGE:

The applicant's performance for this JPM was unsatisfactory because he incorrectly stated that the ANPO (James) could be temporarily assigned to Attachment 6 even though this attachment is only allowed to be assigned to a non-fire brigade NPO. The determination that the ANPO (James) was not allowed to be assigned to O-ONOP-105, Attachment 6, was a critical step.

CONSEQUENCES:

The consequence of not verifying that each shift has satisfied the minimum required staffing and qualification requirements is a potential violation of regulatory commitments and/or a situation where important actions during an emergency are either not performed or performed incorrectly.

KA:

G2.1.5 - Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc. Importance Rating: RO 2.9 / SRO 3.9

10CFR55.45 (13)

Demonstrate the applicant's ability to function within the control room team as appropriate to the assigned position, in such a way that the facility licensee's procedures are adhered to and that the limitations in its license and amendments are not violated.

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CROSS REFERENCE:

Administrative Topic "b"

JPM/TASK:

Required Contingency Actions during Reduced Inventory

EXPECTED ACTION/RESPONSE:

The applicant was expected to perform an outage risk assessment for Unit 4 to identify the minimum required contingency actions in accordance with O-ADM-051, "Outage Risk Assessment and Control". The applicant was expected to select Enclosure 5, Minimum Required Equipment, Phase II, Reduced Decay Heat Load and RCS Temp less than 200°F without RCS Loops Available, to perform the risk assessment based on the initial conditions which included 1) time after shutdown was greater than 240 hours, 2) the RCS loops were not available because RCS level was lower than 3 feet below the vessel flange, and 3) Unit 4 was in Mode 5.

Using Enclosure 5, the applicant was expected to identify that the minimum required equipment was not available for the "On-site and Off-site Power" Key Safe Shutdown Function because the 4A EDG was not available (from the initial conditions). The applicant was then expected to identify that only the FOUR contingency actions listed for this function were REQUIRED (critical step). The only required contingency actions were:

1. Take action to restore the unavailable EDG to service.
2. Suspend activities that may risk the Off-site power sources.
3. Verify availability of the station blackout tie.
4. Verify the ability to power A OR B Bus from one C Bus transformer.

APPLICANT ACTION/RESPONSE:

The applicant selected Enclosure 5 to perform the outage risk assessment; however, the applicant identified TEN required contingency actions:

1. Take action to restore the unavailable EDG to service.
2. Suspend activities that may risk the Off-site power sources.
3. Verify availability of the station blackout tie.
4. Verify the ability to power A OR B Bus from one C Bus transformer.
5. Initiate action to repair the unavailable charging pump.
6. Notify the Operations, Work Controls, Maintenance and Plant Managers.
7. Verify the availability of two HHSI Pumps with suction aligned to an RWST with at least 20,000 gallons of water AND an available flow path to the RCS.
8. Do not reduce RCS inventory; if possible, take action to maximize RCS inventory.

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9. Maintain RCS temperature as low as possible.
10. Suspend activities that would place any remaining charging pump and its power supply at risk.

After the JPM was completed, the examiner asked the applicant to explain how he had determined that ten contingency actions were required. The applicant stated that in addition to the minimum equipment requirements not being met for the "On-site and Off-site Power" Key Safe Shutdown Function, the minimum equipment requirements for the "Inventory Control" Key Safe Shutdown Function were also not met. The applicant stated that the "Inventory Control" Key Safe Shutdown Function requirements were not met because two Charging Pumps did not have an available EDG power source since the 4A EDG was not available.

LACK OF ABILITY/KNOWLEDGE:

The applicant's performance for this JPM was unsatisfactory because he identified more than the minimum required contingency actions. Because of the applicant's lack of knowledge with respect to the Charging Pumps' emergency backup power source, i.e., he stated that two Charging Pumps did not have an EDG available even though the 4B EDG was normally the emergency backup power supply to both the 4B and 4C Charging Pumps, he incorrectly assessed that the equipment needed to satisfy the "Inventory Control" Key Safe Shutdown Function was also not available. Consequently, he identified more than the minimum required contingency actions associated with the "On-site and Off-site Power" Key Safe Shutdown Function, i.e., he identified contingency actions that were incorrect and not required. Identifying only the four required contingency actions was a critical step.

CONSEQUENCES:

The consequence of incorrectly interpreting emergency power supplies to important equipment during a reduced inventory outage condition could result in not meeting limiting conditions of operation, placing the plant in a high risk condition, and incorrect or unnecessary outage contingency action plans.

KA:

G2.1.2 - Knowledge of operator responsibilities during all modes of plant operation. Importance Rating: RO 4.1 / SRO 4.4

G2.2.18 - Knowledge of the process for managing maintenance activities during shutdown operations, such as risk assessments, work prioritization, etc.
Importance Rating: RO 2.6 / SRO 3.9

10CFR55.45(13)

Demonstrate the applicant's ability to function within the control room team as appropriate to the assigned position, in such a way that the facility licensee's procedures are adhered to and that the limitations in its license and amendments are not violated.

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CROSS REFERENCE: Administrative Topic "c"**JPM/TASK:** Determine Required Action for CCW Test**EXPECTED ACTION/RESPONSE:**

The applicant was expected to review the results of 3-OSP-030.1, Component Cooling Water Pump In service Test, and identify the following 3A CCW Pump discrepancies:

- The pump's outboard horizontal vibration was in the required action range (critical)
- The pump's outboard vertical vibration was in the required action range (critical)
- The pump's inboard vertical vibration was in the alert range
- The pump's total head was in the required action range (critical)

The applicant was expected to determine that Step 7.1.32 was required to be checked as "Unsatisfactory" (critical). The applicant was expected to declare the 3A CCW pump inoperable in accordance with 3-OSP-030.1 acceptance criteria item 6.1 and identify that Tech Spec LCO 3.7.2 action statement b was required (critical).

The applicant was expected to identify that the reporting requirements for an unplanned entry into a 72 hour (or less) action statement, in accordance with 0-ADM-115, Notification of Plant Events, Enclosure 2, Plant Management and NRC Resident Notification Table, Item 8 required notification of the NRC resident inspector and plant management in accordance with Attachment 1 (critical).

APPLICANT ACTION/RESPONSE:

The applicant correctly determined that three of the 3A CCW pump surveillance items were in the required action range and that the surveillance was required to be marked as "Unsatisfactory." The applicant correctly identified that the required Tech Spec action statement was 3.7.2.b. However, the applicant only identified the following three required notifications:

- Shift Manager
- In Service Testing Coordinator
- System Engineer

The examiner asked the applicant what notifications were required and the applicant stated that Shift Manager, In Service Testing Coordinator, and System Engineer were required to be notified of the surveillance procedure results. The applicant did not identify that the unplanned entry to a 72 hour LCO required notifying the NRC resident inspector and plant management staff in accordance with 0-ADM-115, Attachment 1. Notification of the plant management staff and the NRC resident inspector was a critical step.

LACK OF ABILITY/KNOWLEDGE:

The applicant's performance for this JPM was unsatisfactory because he failed to identify that the NRC resident inspector and the plant management staff was required to be notified following any unplanned entry to a 72 hour LCO in accordance with 0-ADM-115, Enclosure 2, Attachment 1.

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CONSEQUENCES:

The consequences of not completing timely notification of the plant management staff and the NRC resident inspector are unnecessary delays in corrective actions and/or inspection activities.

KA:

G2.2.12 - Knowledge of surveillance procedures. Importance Rating: RO 3.7 / SRO 4.1

G2.4.30 - Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator. Importance Rating: RO 2.7 / SRO 4.1

10CFR55.45 (13)

Demonstrate the applicant's ability to function within the control room team as appropriate to the assigned position, in such a way that the facility licensee's procedures are adhered to and that the limitations in its license and amendments are not violated.

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APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

3.a: Control Board Operations – Locate and Manipulate

SCENARIO/EVENT:

Scenario 4 / Event 6: 3B Reactor Coolant Pump (RCP) high vibration

EXPECTED ACTION/RESPONSE:

The applicant, as reactor operator (RO), was expected to trip the reactor and then trip the 3B RCP and close the PCV-455B, 3B Loop Pressurizer Spray Valve, in accordance with the Senior Reactor Operator's (SRO) direction.

APPLICANT ACTION/RESPONSE:

After the SRO had directed the applicant to trip the reactor, trip the 3B RCP, and close its spray valve, the applicant tripped the reactor but did not initially trip the RCP and failed to close the PCV-455B. The Balance of Plant (BOP) operator prompted the applicant that he still needed to trip the 3B RCP and the applicant then tripped the 3B RCP; however, the applicant never closed PCV-455B.

After the scenario was completed, the examiner asked the applicant whether he would have tripped the 3B RCP without prompting from the BOP operator and the applicant stated that he would have eventually tripped the pump. The examiner asked the applicant why the SRO had also directed that PCV-455B be closed. The applicant stated that the reason for closing PCV-455B was to comply with a note in 3-ONOP-041.1, Reactor Coolant Pump Off-Normal. The applicant stated the purpose of this action was to prevent back-flow from occurring through the valve (from the adjacent 3C RCP) and that leaving the valve open unnecessarily degraded pressure control. The applicant stated that leaving the valve open could potentially lead to an inadvertent safety injection. The examiner asked the applicant if he had forgotten to close PCV-455B and the applicant stated that he had forgotten to close the valve after he had tripped the 3B RCP.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness implementing the SRO's guidance because he required prompting (from the BOP applicant) to trip the 3B RCP in a timely manner and because he failed to close the associated pressurizer spray valve PCV-455B. Because the applicant made one error for this competency, his score was downgraded to a "2."

CONSEQUENCES:

The consequence of not immediately tripping the 3B RCP was that the pump continued to run with a high vibration condition, which could have led to significant pump/seal damage. The consequence of failing to close the associated spray valve after the pump had been tripped was minimal in this case since the 3C RCP had tripped when power was lost to the 3B 4KV Bus. However, if the 3C RCP had remained in operation, subsequent reactor coolant system pressure control would be hindered by leaving the PCV-455B open after the 3B RCP was tripped.

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K/A:

003 A2.02 Ability to (a) predict the impacts of the following malfunctions or operations on the RCP System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Conditions which exist for an abnormal shutdown of an RCP in comparison to a normal shutdown of an RCP
Importance Rating: RO 3.7 / SRO 3.9

10CFR58.46 (7)

Safely operate the facility's heat removal systems, including primary coolant, emergency coolant, and decay heat removal systems, and identify the relations of the proper operation of these systems to the operation of the facility.

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CROSS REFERENCE: 5.a: Directing Operations – Timely and Decisive Action**SCENARIO/EVENT:**

Scenario 1/ Event 7: Loss of power to the switchyard with a failure of 3A EDG to automatically start and a failure of 3B EDG output breaker to automatically close.

EXPECTED ACTION/RESPONSE:

The applicant, as senior reactor operator (SRO), was expected to enter 3-EOP-ECA-0.0, Loss of All AC Power, and direct the Balance of Plant (BOP) operator to manually synchronize the 3B EDG to the 3B 4KV Bus after bus stripping had been completed from Attachment 2. Energizing the 3B 4KV Bus from the 3B EDG before 3-EOP-ECA-0.0 Step 9 had been completed was a critical task in the scenario.

APPLICANT ACTION/RESPONSE:

The applicant directed the BOP operator to perform bus stripping on the 3A 4KV Bus in accordance with Attachment 1 of 3-EOP-ECA-0.0. The BOP recommended (to the applicant) that he should perform Attachment 2 first since the 3B EDG was already running. The applicant disagreed with the BOP operator and stated that he wanted to perform Attachment 1 before Attachment 2. The BOP operator then began stripping the 3A 4KV Bus in accordance with Attachment 1, as directed by the applicant. After the BOP operator had completed stripping the 3A 4KV Bus, he proceeded to strip the 3B 4KV Bus in accordance with Attachment 2. While the BOP operator was performing Attachment 2, the reactor operator (RO) told the applicant that he was beginning to see seal degradation on all RCPs. The applicant then directed the BOP operator to stop stripping the 3B 4KV Bus and directed the BOP operator to restore the 3A 4KV Bus in accordance with 3-ONOP-004.2, Loss of 3A 4KV Bus. The applicant continued to implement 3-EOP-ECA-0.0 and continued past Step 9 by making preparations to cross-tie the 3A 4KV Bus with Unit 4 via the station blackout tie. Seven minutes after the applicant had continued past Step 9 (which was the crew critical task) the crew was still placing all the emergency core cooling system (ECCS) hand switches in the pull-to-lock position and the examiners determined that the critical task was not met due to degrading plant conditions with both 4KV emergency busses remaining de-energized.

After the scenario was completed, the examiner asked the applicant why he stopped the BOP operator from performing Attachment 2. The applicant stated that he wanted to get the 3A 4KV Bus energized via the Station Blackout tie. The examiner asked the applicant why he didn't attempt to close the 3B EDG output breaker. The applicant stated that he had heard from the crew that the 3B EDG output breaker would not close. The examiner asked the applicant how long the RCP seals were allowed to remain without cooling. The applicant stated that the seals could remain without cooling for 10 to 15 minutes before seal temperatures began degrading.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in taking timely and decisive action that demonstrated a concern for the safety of the plant because he failed to energize the 3B 4KV Bus from the 3B EDG before completing Step 9 of 3-EOP-ECA-0.0. Because this was a crew critical task, the applicant's score for this competency was downgraded to a "1."

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CONSEQUENCES:

The consequence of not reenergizing a 4KV emergency bus in a timely manner following a loss of power to the switchyard is that the RCP seals will fail and result in a loss of coolant accident.

K/A:

056 AA2.14 Ability to determine and interpret the following as they apply to the Loss of Offsite Power: Operational status of ED/Gs (A and b). Importance rating: RO 4.4 / SRO 4.6

10CFR55.45 (8)

Safely operate the facility's auxiliary and emergency systems, including operation of those controls associated with plant equipment that could affect reactivity or the release of radioactive materials to the environment.

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APPLICANT DOCKET NUMBER (b)(6)

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CROSS REFERENCE:

6.b: Technical Specifications (Tech Spec) – Compliance

SCENARIO/EVENT:

Scenario 1 / Event 1: Turbine Plant Cooling Water (TPCW) Isolation Valve POV-3-4882 Stroke Time Test

EXPECTED ACTION/RESPONSE:

After receiving information from the Balance of Plant (BOP) operator that the POV-3-4882 had failed to fully close from the control room during a surveillance test, the applicant, as senior reactor operator (SRO), was expected to declare one Intake Cooling Water (ICW) header inoperable in accordance with Tech Spec 3.7.3.b because POV-3-4882 would not automatically isolate non-essential loads following a safety injection signal. The applicant was expected to identify the required action statement "c", which required restoring the ICW header to an operable status within 72 hours. Consequently, the applicant was expected to implement one of the following three options to either restore cooling (option 1) and remain in the 72 hour action statement or restore ICW header operability (options 2 and 3) and exit the action statement:

1. Locally re-open POV-3-4882. If the applicant used this option, the plant was required to remain in the 72 hour action statement.
2. Isolate the POV-3-4882 by locally closing either an upstream or downstream manual isolation valve. If the applicant used this option, the plant would no longer remain in the 72 hour action statement.
3. Isolate the POV-3-4882 by removing its associated fuses. If the applicant used this option, the plant would no longer remain in the 72 hour action statement.

APPLICANT ACTION/RESPONSE:

When the applicant was notified that the POV-3-4882 had failed its stroke time surveillance test, he declared the ICW header inoperable and identified that Tech Spec 3.7.3.b action statement "c" was required. The applicant then directed the BOP operator to re-open POV-3-4882. The BOP operator re-opened POV-3-4882.

After the scenario was completed, the examiner asked the applicant what the requirements were for Tech Spec 3.7.3.b, action statement "c." The applicant stated that the action statement required restoring two headers to operable status within 72 hours or be in hot standby within the next 6 hours and in cold shutdown within the following 30 hours. The examiner asked the applicant if there was anything that he could do to prevent having to shut down the plant. The applicant referred to print diagram 5613-M-3019, Sheet 1, and identified a local isolation valve that he would close. The examiner asked the applicant whether the 72 hour action statement would still apply if the local isolation valve was closed. The applicant researched Tech Specs and stated that Tech Spec 3.7.3.b, action statement "c" was still required even if the local isolation valve was closed.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness to ensure correct compliance with Tech Spec action statements because he failed to interpret the reason why the ICW header was declared

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APPLICANT DOCKET NUMBER (b)(6)

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inoperable when an unsatisfactory stroke time was noted on POV-3-4882, i.e., because it would fail to isolate non-essential loads following a safety injection signal. The applicant incorrectly determined that action statement "c" was still in effect even if a local isolation valve had been closed. (By closing the local isolation valve, the header supply to the non-essential turbine loads would be isolated and the ICW header cooling to essential loads would still occur following a valid safety injection signal.) Even though isolation valve POV-3-4882 was inoperable, action statement "c" was not applicable when the non-essential portion of the ICW header had been locally isolated. Because the applicant made one error for this competency, his score was downgraded to a "2."

CONSEQUENCES:

The consequence of not correctly interpreting the basis for Tech Spec limiting conditions for operation is that a Tech Spec required action may be missed or an unnecessary plant shutdown could occur.

K/A:

G2.2.40 Ability to apply Tech Specs for a system. Importance Rating: RO 3.4 / SRO 4.7

10CFR55.45 (13)

Demonstrate the applicant's ability to function within the control room team as appropriate to the assigned position, in a way that the facility licensee's procedures are adhered to and that the limitations in its license and amendments are not violated.

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Ex6

U.S. Nuclear Regulatory Commission Individual Examination Report					
Applicant's Name: (b)(6)			Docket Number: (b)(6)		
I	R	Examination Type (Initial or Retake)	Facility Name: Watts Bar		
		Reactor Operator	Facility Description	X	Hot
X		Senior Reactor Operator (SRO) Instant			Cold
		SRO Upgrade			BWR
		SRO Limited to Fuel Handling		X	PWR

Ex6

Written Examination Summary					
NRC Author/Reviewer: Gerard W. Laska			RO/SRO/Total Exam Points 75 / 25 / 100		
NRC Grader/Reviewer: Gerard W. Laska			Applicant Points 59 / 14 / 73		
Date Administered: September 22, 2010			Applicant Grade (%) 78.68 / 56.00 / 73.00		
Operating Test Summary					
Administered by: Edwin Lea, Jr.			Date Administered: 8/23-31/2010		
Walk-Through (Overall)					S
Administrative Topics					S
Simulator Operating Test					S
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination		X		Gerard W. Laska	10/15/2010
Operating Test	X			Edwin Lea, Jr.	10/19/2010
Final Recommendation		X		Gerard W. Laska	10/13/2010
License Recommendation					
	Issue License	Supervisor's Signature			Date
✓	Deny License	Malcolm T. Widmann			10/14/10

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Ex 6

Applicant Docket Number: (b)(6)		
Walk-Through Grading Details	Evaluation (S or U)	Comment Page Number
Administrative Topics		
a. A.1-1 Determine Values for Raising RWST Level (Administered by G. Laska)	S	
b. A.1-2 Determine RCP Start Requirements (Administered by G. Laska)	S	
c. A.2 Determine a T.S. Completion Time Extension (Administered by G. Laska)	U	4 & 5
d. A.3 Determine if Stay times exceed Emergency Exposure Limits	S	
e. A.4 Determine if Conditions warrant a Follow-up Notification or Upgrade based on plant conditions (Administered by G. Laska)	S	
Systems - Control Room		
a. Perform a Minor dilution (Administered by G. Laska)	S	
b. Fill Cold leg Accumulator (Administered by G. Laska)	S	
c. Perform ES-1.3 Transfer to Containment Sump (Administered by G. Laska)	S	
d. N/A		
e. Respond to a PRT High Pressure (Administered by M. Riches)	S	
f. Shutdown of Diesel Generator from Main Control Room	S	
g. Return Failed RCS Temperature Channel to Service (Administered by M. Riches)	S	
h. Shutdown Instrument Room Purge	S	
Systems - In-Plant		
i. Bypass 1-PCV-62-81 CVCS Letdown HX Press Control Locally (Administered by M. Riches)	S	
j. Transfer 250VDC Turbine Building Distribution Board 1 from Normal to Alternate	S	
k. Local Restart of C&SS Air Compressors	S	

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Ex 6

Applicant Docket Number: (b)(6)					
Senior Reactor Operator Simulator Operating Test Grading Details					
Competencies/ Rating Factors (REs)	RF Weights	RF Scores	RF Grades	Comp. Grades	Comment Page No.
1. Interpretation/Diagnosis					
a. Recognize & Attend	0.20	3.00	0.60	3.00	
b. Ensure Accuracy	0.20	3.00	0.60		
c. Understanding	0.30	3.00	0.90		
d. Diagnose	0.30	3.00	0.90		
2. Procedures					
a. Reference	0.30	3.00	0.90	2.20	6
b. EOP Entry	0.30	3.00	0.90		
c. Correct Use	0.40	1.00	0.80		
3. Control Board Operations					
a. Locate & Manipulate	0.34	3.00	1.02	3.00	
b. Understanding	0.33	3.00	0.99		
c. Manual Control	0.33	3.00	0.99		
4. Communications					
a. Clarity	0.40	3.00	1.20	3.00	
b. Crew & Others Informed	0.40	3.00	1.20		
c. Receive Information	0.20	3.00	0.60		
5. Directing Operations					
a. Timely & Decisive Action	0.30	3.00	0.90	3.00	
b. Oversight	0.30	3.00	0.90		
c. Solicit Crew Feedback	0.20	3.00	0.60		
d. Monitor Crew Activities	0.20	3.00	0.60		
6. Technical Specifications					
a. Recognize and Locate	0.40	3.00	1.20	3.00	
b. Compliance	0.60	3.00	1.80		

[Note: Enter RF Weights (nominal, adjusted, or "0" if not observed (NO)), RF Scores (1, 2, 3, or NO), and RF Grades from Form ES-303-4 and sum to obtain Competency Grades.]

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APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

Administrative Topic "c"

JPM TASK:

Determine a Technical Specification Completion Time Extension

EXPECTED ACTION/RESPONSE:

Given the following Initial Conditions:

1. The unit is at 100% power.
2. Today's date is July 4, 2010. The time is 0700.
3. On July 2, 2010 at 0700, the 1A-A Safety Injection pump was declared INOPERABLE.
4. LCO Action Statement 3.5.2.A, "One or more trains inoperable AND at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available," was entered at that time.
5. The 1B-B Safety Injection pump was declared INOPERABLE today at 0700, and LCO 3.0.3 was entered.
6. At 0900 on July 4, 2010, the 1A-A Safety Injection pump was declared OPERABLE.

The applicant was to determine the LATEST date and time that the Unit must be placed in Mode 4 if the 1B-B Safety Injection pump cannot be restored to OPERABLE STATUS.

The applicant was to:

Determine that LCO 3.0.3 can be exited at 0900 on 7/4/2010.

Determine from the second INITIATING CUE that the conditions described in Tech Spec Section 1.3, "Completion Times" have been met.

Determine that the total Completion Time is 24 hours added to the initial entry into LCO 3.5.2 Condition A. Initial entry July 2, 2010 at 0700. The 1B-B SI pump must be restored to OPERABLE status before 0700 on July 6, 2010.

Determine LCO 3.5.2 Condition B cannot be met, and that the Unit must be placed in Mode 4 within the next 12 hours, with the time starting at 0700 on July 6, 2010. Therefore, the Unit must be in Mode 4 by 1900 on July 6, 2010. (Critical Step)

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APPLICANT ACTION/RESPONSE:

The applicant correctly determined LCO 3.0.3 could be exited at 0900 on July 4, 2010. The applicant failed to determine the 24 hour extension time was applicable and determined the plant must be in mode 4 on July 5, at 1900. The applicant failed to determine that the correct time to be in mode 4 was July 6, at 1900. Determining 1900, July 6, 2010, to be the latest time to be in mode 4 was a critical step and resulted in the applicant receiving an unsatisfactory grade on this JPM.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in the ability to apply a technical specification completion time extension.

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CROSS REFERENCE:

2 "c" Procedures - Correct Use

SCENARIO:

Scenario 1, Event 6, 7, 8 & 9

EVENT DESCRIPTION:

Raw cooling water temperature control valve to stator water cooler fails closed. Fifteen seconds after the trip, a PZR vapor space break occurs, requiring a manual safety injection (SI).

EXPECTED ACTION/RESPONSE:

Following the vapor space break, the crew was expected to recognize that safety injection failed to automatically actuate and take actions to manually actuate SI using SI hands switches/push buttons.

APPLICANT ACTION/RESPONSE:

The applicant, as the balance of plant operator (BOP), along with other crew members, recognized that an SI failed to automatically actuate. However, the applicant did not manually initiate SI using the SI initiation hand switches. The applicant initiated SI using procedural appendices. Using the hand switches would have immediately initiated SI, where as using appendices took several minutes. Following the scenario the applicant was asked what actions were taken to initiate SI. The applicant stated that he started the SI pumps manually, and used procedural guidance to complete alignment, but should have used the manual switches to initiate SI. Ensuring actuation of SI was a critical task. As a result, the applicant received a grade of 1.0 on this rating factor.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated an inability to comply with procedures in an accurate and timely manner, specifically correctly performing immediate action steps from memory.

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**U.S. Nuclear Regulatory Commission
Individual Examination Report**

Ex 6 Applicant's Name: (b)(6) Docket Number: (b)(6) Ex 6

I	R	Examination Type (Initial or Retake)	Facility Name: Watts Bar
		Reactor Operator	Facility Description X Hot Cold BWR X PWR
X		Senior Reactor Operator (SRO) Instant	
		SRO Upgrade	
		SRO Limited to Fuel Handling	

Written Examination Summary					
NRC Author/Reviewer: Gerard W. Laska			RO/SRO/Total Exam Points 75 / 25 / 100		
NRC Grader/Reviewer: Gerard W. Laska			Applicant Points 61 / 14 / 75		
Date Administered: September 22, 2010			Applicant Grade (%) 81.33 / 56.00 / 75.00		
Operating Test Summary					
Administered by: Gerard W. Laska			Date Administered: 8/23-9/2, 2010		
Walk-Through (Overall)					S
Administrative Topics					S
Simulator Operating Test					S
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination		X		Gerard W. Laska	10/12/2010
Operating Test	X			Gerard W. Laska	10/12/2010
Final Recommendation		X		Bruno Caballero	10/13/10
License Recommendation					
	Issue License	Supervisor's Signature			Date
✓	Deny License	Malcolm T. Widmann			10/14/10

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Ex 6

Applicant Docket Number: (b)(6)		
Walk-Through Grading Details	Evaluation (S or U)	Comment Page Number
Administrative Topics		
a. A.1-1 Determine Values for Raising RWST Level	S	
b. A.1-2 Determine RCP Start Requirements	S	
c. A. 2 Determine a T.S. Completion Time Extension	S	
d. A.3 Determine if Stay times exceed Emergency Exposure Limits (Administered by E. Lea)	S	
e. A.4 Determine if Conditions warrant a Follow-up Notification or Upgrade based on plant conditions. (Administered by M. Riches)	S	
Systems - Control Room		
a. Perform a Minor dilution (Administered by M. Riches)	S*	4
b. Fill Cold leg Accumulator	S	
c. Perform ES-1.3 Transfer to Containment Sump	S	
d. N/A		
e. Respond to a PRT High Pressure	S	
f. Shutdown of Diesel Generator form Main Control Room (Administered by E. Lea)	S	
g. Return Failed RCS Temperature Channel to Service (Administered by M. Riches)	S	
h. Shutdown Instrument Room Purge (Administered by M. Riches)	S	
Systems - In-Plant		
i. Bypass 1-PCV-62-81 CVCS Letdown HX Press Control Locally (Administered by M. Riches)	S	
j. Transfer 250VDC Turbine Building Distribution Board 1 from Normal to Alternate (Administered by E. Lea)	S	
k. Local Restart of C&SS Air Compressors (Administered by E. Lea)	S	

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Ex 6

Applicant Docket Number: (b)(6)					
Senior Reactor Operator Simulator Operating Test Grading Details					
Competencies/ Rating Factors (RFs)	RF Weights	RF Scores	RF Grades	Comp. Grades	Comment Page No.
1. Interpretation/Diagnosis a. Recognize & Attend b. Ensure Accuracy c. Understanding d. Diagnose	0.20 0.20 0.30 0.30	3.00 3.00 3.00 2.00	0.60 0.60 0.90 0.60	2.70	5
2. Procedures a. Reference b. EOP Entry c. Correct Use	0.30 0.30 0.40	3.00 3.00 1.00	0.90 0.90 0.40	2.20	6, 7, 8
3. Control Board Operations a. Locate & Manipulate b. Understanding c. Manual Control	0.34 0.33 0.33	3.00 2.00 3.00	1.02 0.66 0.99	2.67	9
4. Communications a. Clarity b. Crew & Others Informed c. Receive Information	0.40 0.40 0.20	3.00 3.00 3.00	1.20 1.20 0.60	3.00	
5. Directing Operations a. Timely & Decisive Action b. Oversight c. Solicit Crew Feedback d. Monitor Crew Activities	0.30 0.30 0.20 0.20	3.00 3.00 3.00 3.00	0.90 0.90 0.60 0.60	3.00	
6. Technical Specifications a. Recognize and Locate b. Compliance	0.40 0.60	3.00 3.00	1.20 1.80	3.00	

[Note: Enter RF Weights (nominal, adjusted, or "0" if not observed (N/O)), RF Scores (1, 2, 3, or N/O), and RF Grades from Form ES-303-4 and sum to obtain Competency Grades.]

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APPLICANT DOCKET NUMBER (b)(6)

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CROSS REFERENCE:

Systems – Control Room: JPM "a"

JPM/TASK:

Perform a Minor Dilution

EXPECTED ACTION/RESPONSE:

The applicant was expected to recognize a planned dilution failed to terminate, respond to the uncontrolled dilution IAW AOI-3, Malfunction of Reactor Makeup Control, Section 3.2, Inadvertent Dilution and stop the running primary water (PW) pump, which was the critical step associated with the actions directed by AOI-3, Section 3.2.

APPLICANT ACTION/RESPONSE:

The applicant recognized that an uncontrolled dilution was in progress, entered AOI-3 and stopped the running PW pump. While performing Section 3.2 of AOI-3, the applicant failed to perform the actions from the "Response Not Obtained" (RNO) column for step 2 of the procedure. The step required the user to close the flow control valve 1-FCV-62-143, PW to Blender, which failed to respond to actuation of its handswitch. This failure of the flow control valve required performance of the actions from the RNO column for step 2, specifically directing a field operator to locally close isolation valve 1-ISV-62-933, CVCS BA Blender PW Supply Isol. While the applicant recognized that 1-FCV-62-143 had not responded to operation of its handswitch, the applicant continued on with the next subsequent step rather than transitioning to the RNO column for the step as required. This procedural action was not critical to successful performance of the JPM. Therefore the applicant's performance was rated satisfactory.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of knowledge concerning procedure use, specifically selecting correct paths at decision points.

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APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

1 "d" Interpretation/Diagnosis-Diagnose

SCENARIO:

Scenario 4, Event 5

EVENT DESCRIPTION:

1A CCS pump shaft shears and 1B CCS pump fails to auto start. AOI-15 "Loss of Component Cooling Water (CCS)" entry is required.

EXPECTED ACTION/RESPONSE:

With numerous low flow alarms associated with the 1A CCS header and the 1A CCS pump having no discharge pressure, the applicant, as Balance of Plant Operator (BOP), was expected to diagnose the sheared shaft on the A CCS pump, and the failure of the B CCS pump to autostart.

APPLICANT ACTION/RESPONSE:

The applicant, as the BOP, observed the numerous low flow alarms, proceeded to the back panels, and announced to the SRO that the A CCS pump was running (sheared shaft), and he could not see any reason for the alarms. The SRO proceeded to the back panels, observed that the A CCS pump had no discharge pressure, announced that it probably had a shaft shear and entered AOI-15. The SRO then stated that the 1B CCS pump had apparently not automatically started. Only one error was made in this rating factor, therefore a grade of 2.0 was assigned.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in the ability to diagnose a sheared shaft and a failure of a pump to autostart on technical specification related system.

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

CROSS REFERENCE:

2 "c" Procedures-Correct Use

SCENARIO:

Scenario 2, Event 6

EVENT DESCRIPTION:

Anticipated Transient Without Scram (ATWS), requiring entry into FR-S.1 "Nuclear Power Generation/ATWS." 1A and 1B Motor Driven Auxiliary Feedwater Pumps fail to automatically start, requiring manual start. 1-FCV-62-138 fails to open from the MCB requiring local operation to begin a boration.

EXPECTED ACTION/RESPONSE:

The applicant, as Senior Reactor Operator (SRO), was expected to enter FR-S.1, direct actions, and in part at step 6; Verify Containment Vent Isolation; If an isolation had not occurred, the applicant was to direct the BOP operator to Ensure containment purge supply and exhaust fans STOPPED, and close dampers.

APPLICANT ACTION/RESPONSE:

The applicant, as SRO, entered FR-S.1, read step 6, and asked the BOP if a Containment Ventilation Isolation signal had occurred? The BOP replied "containment ventilation isolation has not occurred." The applicant then instructed the BOP to initiate containment ventilation isolation. The BOP then asked if there was something else written in the Response Not Obtained (RNO) column. The applicant then read the RNO step and directed the BOP to ensure containment purge supply and exhaust fans STOPPED, and dampers were closed. The applicant had three errors in this rating factor; therefore a grade of 1.0 was assigned.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in the ability to correctly use procedures as written.

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

CROSS REFERENCE:

2 "c" Procedures-Correct Use

SCENARIO:

Scenario 2, Event 6, 7

EVENT DESCRIPTION:

Anticipated Transient Without Scram (ATWS), requiring entry into FR-S.1 "Nuclear Power Generation/ATWS." 1A and 1B Motor Driven Auxiliary Feedwater Pumps fail to automatically start, requiring manual start. 1-FCV-62-138 fails to open from the MCB requiring local operation to begin a boration. Steam Line Break Inside Containment

EXPECTED ACTION/RESPONSE:

The applicant, as SRO, was expected to enter FR-S.1 and direct the actions of FR-S.1 until the procedure directed a transition to another procedure.

APPLICANT ACTION/RESPONSE:

The applicant, as SRO, entered FR-S.1 and directed actions as required of the procedure until the team reached step 21. Step 21 had the crew terminate emergency boration, and when the crew directed the auxiliary operator to close the alternate emergency boration valve, a steam line break in containment was initiated. The applicant realized that a Safety Injection had occurred and placed the FR-S.1 procedure on the desk and immediately began performing actions of E-0 "Reactor Trip or Safety Injection." During post scenario follow up questioning the examiner asked the applicant if he had reached a transition out of FR-S.1, and the operator replied that he had a safety injection and needed to go to E-0. Procedure FR-S.1 has actions for safety injection embedded in the procedure. The applicant had three errors in this rating factor, therefore a grade of 1.0 was assigned.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in the ability to correctly use procedures as written. In this case the applicant should have implemented status tree monitoring and FR-S.1 would have directed the applicant to then return to E-0.

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

CROSS REFERENCE:

2 "c" Procedures-Correct Use

SCENARIO:

Scenario 2, Event 7

EVENT DESCRIPTION:

Steam Line Break Inside Containment

EXPECTED ACTION/RESPONSE:

With a steam line break in progress the applicant, as SRO, was expected to isolate the faulted SG using E-2 "Faulted Steam Generator Isolation," and then transition to E-1 Loss of Reactor or Secondary Coolant." The applicant was expected to proceed through E-1 until the faulted SG had blown down and SI termination criteria were met.

APPLICANT ACTION/RESPONSE:

The applicant, as SRO, transitioned from E-0 to E-2 and the crew isolated the faulted SG. The applicant then correctly transitioned from E-2 to E-1 and began performing the actions of E-1. The applicant proceeded through E-1 and reached step 11 "Check SI Termination Criteria." The applicant requested the required information from the crew members. The plant met the criteria for subcooling, secondary heat sink, and RCS pressure. However pressurizer level was not greater than 33% (using adverse numbers). The RNO for this step directed the crew to restore pressurizer level by stabilizing RCS pressure using normal sprays and to proceed to step 12. The applicant read the RNO, and then waited for pressurizer level to increase to greater than 33%, then exited to ES-1.1 "SI Termination." The applicant had three errors in this rating factor, therefore a grade of 1.0 was assigned.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in the ability to correctly perform the procedure. The applicant was supposed to go to step 12, and continue to perform the procedure until at step 14 (check pressures in all SGs control or rising) or step 15 (Check RCS Pressure Stable or dropping). If SG pressures were continuing to drop (SG not fully blown down) the procedure directed the crew to return to step 1 and continue through the procedure until the SG was blown down and SI termination Criteria were met. Step 15 would have the crew check RCS pressure and if RCS pressure was rising again the crew would go back to step 1 continue through the procedure until SI termination criteria were met.

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APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

3 "b" Control Board Operations-Understanding

SCENARIO:

Scenario 5, Event 6, 7

EVENT DESCRIPTION:

Main Steam Line Break outside of containment. No MSIVs close initially. After entry into ECA-2.1, "Uncontrolled Depressurization of All Steam Generators," #1, 2, and 3 Steam generator MSIVs are closed manually. #4 MSIV remains open for the duration of the event.

EXPECTED ACTION/RESPONSE:

While performing the actions of ECA-2.1, "Uncontrolled Depressurization of All Steam Generators," the applicant as RO was expected to, in part, isolate the steam supply valves to the TD AFW pump.

APPLICANT ACTION/RESPONSE:

The applicant, as RO, was directed by the SRO to isolate the steam supply valves to the TD AFW pump in accordance with step 2 of ECA-2.1. The applicant went to close on 1-HS-1-15A S/G 1 steam supply to T/D AFW pump and the valve began to close. The applicant observed the other steam supply isolation valve 1-HS-1-16A S/G 4 steam supply to T/D AFW pump was already closed, (but was in the auto position). The applicant reported to the SRO that both valves were closed. However, when the first valve manipulated became fully closed the other isolation valve, 1-HS-1-16A S/G 4 steam supply to T/D AFW pump (still in the auto position) opened. The applicant failed to notice the valve had opened, and the TDAFW pump was never isolated from all steam generators. Only one error was made in this rating factor, therefore a grade of 2.0 was assigned.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in the understanding of how these two valves operated when in automatic, and failed to isolate the steam supplies to the TD AFW pump as required.

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Ex 6

U.S. Nuclear Regulatory Commission Individual Examination Report					
Applicant's Name: (b)(6)			Docket Number: (b)(6)		
I	R	Examination Type (Initial or Retake)	Facility Name: McGuire		
X		Reactor Operator	Facility Description	X	Hot
		Senior Reactor Operator (SRO) Instant			Cold
		SRO Upgrade			BWR
		SRO Limited to Fuel Handling		X	PWR

Ex 6

Written Examination Summary					
NRC Author (Reviewer) Ronald F. Aiello			RO/SRO/Total Exam Points: 75 / N/A / 75		
NRC Grader/Reviewer: Ronald F. Aiello			Applicant Points: 55 / N/A / 55		
Date Administered: August 12, 2010			Applicant Grade (%): 73.33 / N/A / 73.33		
Operating Test Summary					
Administered by: G. Apger			Date Administered: August 2 -5, 2010		
Walk-Through (Overall)					S
Administrative Topics					S
Simulator Operating Test					S
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination		X		Ronald F. Aiello	8/25/10
Operating Test	X			Gabriel W. Apger	8-25-10
Final Recommendation		X		Ronald F. Aiello	8/26/10
License Recommendation					
	Issue License	Malcolm T. Widmann			Date 08/26/10
X	Deny License				

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Ex 6

Applicant Docket Number: (b)(6)		
Walk-Through Grading Details	Evaluation. (S or U)	Comment Page Number
Administrative Topics		
a. Perform an ECP	S	
b. Determine Boric Acid Addition to FWST Administered by R. Aiello	S	
c. Perform a Manual NC Leakage Calculation Administered by R. Aiello	S	
d. Perform a Unit Vent Flow Calculation of a Containment Air Release Administered by R. Aiello	S	
e. N/A		
Systems - Control Room		
a. Transfer the NI Pumps from Cold Leg Recirc to Hot Leg Recirc	S	
b. Respond to ND System Malfunction While at Mid Loop	S	
c. Swap Hotwell/CM Booster Pumps	S	
d. Manually Actuate Containment Spray System	S	
e. Separate From the Electrical Grid Due to Low Grid Frequency	S	
f. Restore Repaired Power Range Channel to Service	S	
g. Isolate the Circ Water System During Turbine Building Flooding Administered by J. Tomlinson	S	
h. Remove Pressurizer Heaters from Service	S	
Systems - In-Plant		
i. Startup Main Vacuum Pump Administered by J. Tomlinson	S	
j. Makeup to the Unit 1 KC Surge Tanks Administered by J. Tomlinson	S	
k. Establish Reactor Coolant Pump Seal Injection from the SSF Administered by J. Tomlinson	S	

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Ex 6

Applicant Docket Number (b)(6)					
Reactor Operator Simulator Operating Test Grading Details					
Competencies/ Rating Factors (RFs)	RF Weights	RF Scores	RF Grades	Comp. Grades	Comment Page No.
1. Interpretation/Diagnosis					
a. Recognize & Verify Status	0.40	2	0.80		4
b. Interpret & Diagnose Conditions	0.30	3	0.90	2.30	
c. Prioritize Response	0.30	2	0.60		5
2. Procedures/Tech Specs					
a. Reference	0.30	3	0.90		
b. Procedure Compliance	0.40	3	1.20	3.00	
c. Tech Spec Entry	0.30	3	0.90		
3. Control Board Operations					
a. Locate & Manipulate	0.40	3	1.20		
b. Understanding	0.30	2	0.60	2.70	6
c. Manual Control	0.30	3	0.90		
4. Communications					
a. Provide Information	0.34	3	1.02		
b. Receive Information	0.33	3	0.99	3.00	
c. Carry Out Instructions	0.33	3	0.99		

[Note: Enter RF Weights (nominal, adjusted, or "0" if not observed (N/O)), RF Scores (1, 2, 3, or N/O), and RF Grades from Form ES-303-3 and sum to obtain Competency Grades.]

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Ex 6

APPLICANT DOCKET NUMBER

(b)(6)

CROSS REFERENCE:

Simulator Competency 1.a, Interpretation / Diagnosis, Recognize and Verify Status

SCENARIO/EVENT:

Scenario 4, Event 6, Unisolable Feedline Break, 1C Steam Generator

EXPECTED ACTION/RESPONSE:

Following actuation of Safety Injection (SI) and while verifying automatic actuations, the applicant, as the RO, was required to recognize that Feedwater Isolation (FWI) had failed to automatically actuate. The applicant was then required to manually actuate FWI.

APPLICANT ACTION/RESPONSE:

The applicant failed to recognize that FWI did NOT automatically actuate coincident with the SI. The BOP operator prompted the applicant that FWI had failed, and then the applicant manually actuated FWI.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in the ability recognize failure of automatic actuations and off-normal system status following actuation of SI. Because the applicant made only one error related to this RF, he received an RF score of "2."

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Ex 6

APPLICANT DOCKET NUMBER

(b)(6)

CROSS REFERENCE:

Simulator Competency 1.c, Interpretation / Diagnosis, Prioritize Response

SCENARIO/EVENT:

Scenario 2, Event 7, Steam Generator Tube Rupture

EXPECTED ACTION/RESPONSE:

The applicant, as the BOP, was expected to implement the foldout page criteria of EP/1/A/5000/ES-0.1, Reactor Trip Response. One of the criteria required Safety Injection (SI) actuation when Pressurizer Level reached 4 percent.

APPLICANT ACTION/RESPONSE:

The applicant failed to notice that Pressurizer Level had reached 4 percent until 1 minute after the Pressurizer had emptied. The applicant then actuated SI, and the crew progressed to EP/1/A/5000/E-0, Reactor Trip / Safety Injection.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in the ability to attend to and prioritize instrument readings that would indicate transition criteria within the emergency operating procedures. Because the applicant made only one error related to this RF, he received an RF score of "2."

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Ex 6

APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

Simulator Competency 3.b, Control Board Operations, Understanding

SCENARIO/EVENT:

Scenario 4, Event 1, Raise Reactor Power

EXPECTED ACTION/RESPONSE:

The applicant, as the RO, was expected to place Control Rod Drive (CRD) into Auto once Average Coolant Temperature (Tave) was within 1 degree of Reference Temperature (Tref) following initiation of the power increase. Due to changing turbine load and a Xenon transient, the control system demanded rods out throughout most of the transient; however, it was expected that any dilutions would cause control system response to momentarily demand no rod motion or rod insertion. Additionally, manual rod control was available for temperature control.

APPLICANT ACTION/RESPONSE:

The event started at a power level that would permit automatic rod control. The first and second 200 gallon NC dilutions caused Tave and Tref to be within 1 degree. However, the applicant did not place CRD in Auto. The CRS then prompted the applicant to place CRD in Auto; however, by that time, the control system was demanding rods out (greater than 1 degree mismatch). The applicant could have used Manual rod control to restore Tave, but he elected to request a 300 gallon dilution. The large dilution caused the control system to change demanded rod motion from rods out to rods in, in less than one minute. This condition remained for approximately five minutes, causing the crew to delay the startup while waiting for automatic rod control.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in his understanding of when to place CRD in Auto during a startup; the effects of a large dilution on control system response; and, when Manual rod control would be appropriate during power changes. Because the applicant made only one error related to this RF, he received an RF score of "2."

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APPLICANT DOCKET NUMBER (b)(6)

U.S. Nuclear Regulatory Commission
Individual Examination Report

Applicant's Name: (b)(6) Docket Number: (b)(6)

I	R	Examination Type (Initial or Retake)	Facility Name: Browns Ferry
	X	Reactor Operator	X Hot
		Senior Reactor Operator (SRO) Instant	Cold
		SRO Upgrade	X BWR
		SRO Limited to Fuel Handling	PWR

Written Examination Summary

NRC Author/Reviewer: P. Capehart	RO Total Exam Points	75
NRC Grader/Reviewer: P. Capehart	Applicant Points	60
Date Administered: June 17, 2010	Applicant Grade (%)	80.00

Operating Test Summary

Administered by: NA	Date Administered: NA
Walk-Through (Overall)	NA
Administrative Topics	NA
Simulator Operating Test	NA

Examiner Recommendations

Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination	X			P. Capehart	07/14/10
Operating Test			X	NA	NA
Final Recommendation	X			P. Capehart	07/14/10

License Recommendation

X	Issue License	Supervisor's Signature	Date
	Deny License	Malcolm T. Widmann	07/15/10

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**U.S. Nuclear Regulatory Commission
Individual Examination Report**

Ex 6

Applicant's Name: (b)(6) Docket Number: (b)(6) Ex 6

I	R	Examination Type (Initial or Retake)	Facility Name: Farley
X		Reactor Operator	Facility Description <input checked="" type="checkbox"/> Hot <input type="checkbox"/> Cold <input type="checkbox"/> BWR <input checked="" type="checkbox"/> PWR
		Senior Reactor Operator (SRO) Instant	
		SRO Upgrade	
		SRO Limited to Fuel Handling	

Written Examination Summary

NRC Author/Reviewer: M. Bates	RO/SRO/Total Exam Points 74 / N/A / 74
NRC Grader/Reviewer: M. Meeks	Applicant Points 56 / N/A / 56
Date Administered: April 13, 2010	Applicant Grade (%) 75.67 / N/A / 75.67

Operating Test Summary

Administered by: M. Meeks	Date Administered: April 5 - 9, 2010
Walk-Through (Overall)	S
Administrative Topics	S
Simulator Operating Test	S

Examiner Recommendations

Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination		X		Michael R. Meeks M. Meeks	05/27/2010
Operating Test	X			Michael R. Meeks M. Meeks	05/27/2010
Final Recommendation		X		Mark G. Tate M. Bates	05/27/2010

License Recommendation

<input type="checkbox"/>	Issue License	Supervisor's Signature Malcolm Widmann	Date 05/28/10
<input checked="" type="checkbox"/>	Deny License		

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Ex 6

Applicant Docket Number: (b)(6)		
Walk-Through Grading Details	Evaluation (S or U)	Comment Page Number
Administrative Topics		
a. Verification of initial conditions prior to core alterations (Administered by M. Bates)	S	
b. Conduct a safety shutdown assessment and determine time to saturation	S	
c. Perform a shutdown margin calculation in modes 1 & 2 for a stuck rod	S	
d. Calculate the maximum permissible stay time within the emergency dose limits	S	
e. Make Initial Notifications as required for an Emergency	error S	
Systems - Control Room		
a. Perform an emergency boration (Administered by M. Bates)	S	
b. Align PRF system for a large break LOCA	S	
c. Perform required actions to transfer to simultaneous hot and cold leg recirculation (Administered by G. Laska)	S	
d. Perform required actions in response to RCP seal failures (Administered by G. Laska)	S	
e. Start the containment cooling system	S	4
f. Start 1C DG from the EPB and align to supply 1F 4160V bus (Administered by G. Laska)	U	5
g. Perform corrective actions in response to a CCW pump trip	S	6, 7
h. Verify CTMT isolation phase "A" is actuated and aligned (Administered by G. Laska)	S	
Systems - In-Plant		
i. Conduct a waste gas release (Administered by G. Laska)	S	
j. Operate the TDAFW pump locally without control power (Administered by M. Bates)	S	
k. Place the swing battery charger in service (Administered by M. Bates)	S	

not
performing
per
instructions

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Ex 6

Applicant Docket Number: (b)(6)					
Senior Reactor Operator Simulator Operating Test Grading Details					
Competencies/ Rating Factors (RFs)	RF Weights	RF Scores	RF Grades	Comp. Grades	Comment Page No.
1. Interpretation/Diagnosis					
a. Recognize & Verify Status	0.40	3	1.20		
b. Interpret & Diagnose Conditions	0.30	2	0.60	2.70	8
c. Prioritize Response	0.30	3	0.90		
2. Procedures/Tech Specs					
a. Reference	0.30	3	0.90		
b. Procedure Compliance	0.40	1	0.40	2.20	9 - 12
c. Tech Spec Entry	0.30	3	0.90		
3. Control Board Operations					
a. Locate & Manipulate	0.40	3	1.20		
b. Understanding	0.30	3	0.90	2.70	13
c. Manual Control	0.30	2	0.60		
4. Communications					
a. Provide Information	0.34	1	0.34		
b. Receive Information	0.33	3	0.99	2.32	14 - 16
c. Carry Out Instructions	0.33	3	0.99		

[Note: Enter RF Weights (nominal, adjusted, or [00] if not observed (N/O)), RF Scores (1, 2, 3, or N/O), and RF Grades from Form ES-303-4 and sum to obtain Competency Grades.]

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APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

Systems - Control Room "e"

JPM/TASK:

Start Up the Containment Cooling System

EXPECTED ACTION/RESPONSE:

The applicant was directed to start up the Containment Cooling System in accordance with FNP-1-SOP-12.1, "CONTAINMENT AIR COOLING SYSTEM," section 4.1, "Containment Cooling System Startup." Step 4.1.3 of this procedure states:

4.1.3 Open the 1A(1B,1C,1D) CTMT CLR SW DISCH valves:

- 1A CTMT CLR SW DISCH Q1P16MOV3023A
- 1B CTMT CLR SW DISCH Q1P16MOV3023B
- 1C CTMT CLR SW DISCH Q1P16MOV3023C
- 1D CTMT CLR SW DISCH Q1P16MOV3023D.

When the applicant reached this step, the applicant was expected to proceed to a back panel (the so-called "BOP Panel") of the simulator and open the four service water discharge valves identified above.

APPLICANT ACTION/RESPONSE:

When the applicant reached step 4.1.3, he displayed an inability to correctly locate the valve control switches. The applicant initially attempted to locate the switches on the main control board, then unsuccessfully looked at the "BOP Panel" for the valves, and then attempted to locate the valve switches using reference materials available in the control room simulator. After approximately 20 minutes, the applicant returned to the "BOP Panel" area and successfully located the valve control switches.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to locate control room switches, controls, and indications related to the containment cooling system (K/A 022G2.1.31 - RO 4.6). However, the applicant was able to successfully complete the assigned task, and was evaluated with an overall satisfactory grade for this JPM.

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APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

Systems - Control Room "F"

JPM/TASK:

Start 1C Diesel Generator (DG) from the Emergency Power Board (EPB) and align it to supply the 1F 4160v Bus, then Start the 1A Charging Pump and support equipment.

EXPECTED ACTION/RESPONSE:

The applicant was expected to start the 1C DG from the EPB using Abnormal Operating Procedure (AOP) 5.1 (Contingency Electrical Alignments) and verify 1C DG aligned to Unit 1. The applicant was then expected to attempt to close DF-02 (supply breaker from bus 1F to bus 1K) and when breaker DF-02 tripped, determine that the 4160v 1K bus had a fault and its supply breaker would not reset. The 1K bus being de-energized left the 1C DG without any cooling water and the applicant would then be expected to emergency shutdown the 1C DG using AOP-10.0 (Loss of Service Water) Attachment 1 (Securing a Diesel Generator), or the DG emergency shutdown placard. Both the placard and Attachment 1 of AOP 10.0 had the operator place the DG in Mode 3 to prevent the diesel from automatically starting. (This was a critical step that protected the diesel generator).

APPLICANT ACTION/RESPONSE:

The applicant started the DG in accordance with AOP 5.1, verified that it aligned to the 4160v 1F Bus, and attempted to energize the 1K bus by closing DF-02. The applicant determined that the 1K bus was faulted when DF-02 tripped and would not reset, and stated that the 1C DG should be shutdown. The applicant reviewed the Emergency Shutdown placard and stated that the placard did not apply because the diesel did not experience an emergency auto-start. The applicant did not refer to AOP-10.0 Attachment 1, and instead used System Operating Procedure (SOP) 38.0 (Diesel Generators) to secure the diesel. SOP 38.0 did not direct the applicant to place the DG in Mode 3, therefore the applicant failed to place the diesel in Mode 3 as required. Placing the DG in Mode 3 was a critical step, and resulted in the applicant being graded unsatisfactory on this JPM.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in the ability to refer to the appropriate procedure in order to ensure that a safety related piece of equipment was protected.

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APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

Systems - Control Room "g"

JPM/TASK:

Perform Corrective Actions in Response to a CCW Pump Trip

EXPECTED ACTION/RESPONSE:

The applicant was expected to mitigate the consequences of a loss of Component Cooling Water (CCW) due to an unexpected trip of the 1A CCW pump with the plant in MODE 5, the Pressurizer solid, and with 1A and 1B Charging pump breakers racked out and tagged in accordance with the plant procedures for this condition. The applicant was expected to perform FNP-1-AOP-9.0, "LOSS OF COMPONENT COOLING WATER," and secure the 1B RHR pump, which was running without cooling water. When annunciator EA3, "CHG PUMP LO TEMP HIGH," was received during performance of the JPM, the applicant was expected to perform FNP-1-ARP-1.5, "MAIN CONTROL BOARD ANNUNCIATOR PANEL E," the Alarm Response Procedure (ARP), in parallel with AOP-9.0; and to secure the 1C Charging pump using the ARP when a high lube oil temperature condition was identified. Securing the 1B RHR pump and securing the 1C Charging pump were the two critical tasks of the JPM.

APPLICANT ACTION/RESPONSE:

When the applicant reached Response Not Obtained (RNO) step 1.3 of AOP-9.0, which states: "IF charging pump started in non affected train, THEN stop charging pump in affected train," the applicant incorrectly stopped the running 1C Charging pump. The applicant did not meet the conditions of step 1.3 because there was not a charging pump started [i.e., running] in the non affected train; also, the EA3 alarm had not yet been received. After the applicant secured the charging pump, he re-read the step, and stated, "I shouldn't have secured that pump." The applicant then communicated with the examiner, in the role of the Senior Reactor Operator (SRO), and recommended re-starting 1C Charging pump. The SRO granted permission, and the applicant re-started the 1C Charging pump. A few minutes after re-starting the 1C Charging pump, the applicant received annunciator EA3 in alarm, and silenced/acknowledged the alarm. However, the applicant did not enter the ARP for alarm EA3. When the applicant reached RNO step 2.3.3 of AOP-9.0, which is worded exactly the same as RNO step 1.3, he re-secured the 1C Charging pump. The applicant appropriately secured the 1B RHR pump using AOP-9.0, as expected.

During post-JPM follow up questioning, the applicant stated that he should not have secured the 1C Charging pump at either RNO step 1.3 or at RNO step 2.3.3, because there was not another charging pump running [in the non affected train.] The applicant further stated that he was trying to find the correct step in AOP-9.0 to secure the running charging pump, because he was concerned that it was running without cooling water. The applicant stated that he did not reference the ARP for alarm EA3 because he thought there would be a step in AOP-9.0 to secure the charging pump.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to correctly prioritize and interpret the significance of annunciators and alarms as related to a loss of CCW (K/A 026AG2.4.45 - RO 4.1), a lack of

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

ability to verify system alarm setpoints and operate controls identified in the alarm response manual as related to a loss of CCW (K/A 026AG2.4.50 – RO 4.2), a lack of ability to operate and/or monitor loads on the CCW system in the control room during a loss of CCW condition (K/A 026AA1.02 – RO 3.2), and a lack of ability to interpret and execute procedure steps, as related to a loss of CCW (K/A 026AG2.1.20 – RO 4.6). However, the applicant was able to successfully complete the assigned task, including all critical steps, and was evaluated with an overall satisfactory grade for this JPM.

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APPLICANT DOCKET NUMBER (b)(6)

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CROSS REFERENCE:

1.b. Interpretation/Diagnosis – Interpret & Diagnose Conditions

SCENARIO:

Scenario 4, Event 4.

EVENT DESCRIPTION:

PT-464 (Steam Header Pressure) fails high, steam dumps open until shut by P-12, SGFP speed increases, manual control required.

EXPECTED ACTION/RESPONSE:

The applicant, as Balance of Plant operator (BOP), was expected to correctly diagnose the PT-464 failure by observing various control room indications, including: steam dump demand indicator TI-408 increasing, additional steam dump valves opening, steam flow increasing on all steam generators (S/G), steam header pressure indicator PI-464A increasing to 1200 psig (pegged high), reactor coolant system average coolant temperature (Tavg) decreasing, and reactor power increasing.

APPLICANT ACTION/RESPONSE:

Upon indications of the failure, the applicant took immediate operator actions to stabilize the plant, and the Senior Reactor Operator (SRO) applicant entered procedure FNP-1-AOP-100, "INSTRUMENTATION MALFUNCTION." As the initial question in AOP-100, the SRO asked the applicant if an instrument failure had occurred. The applicant had difficulty answering, and stated that "PK-464 is high, we're less than 543, the dumps are closed." After a few more moments, the applicant stated: "No, I don't think it was an instrumentation failure." Three minutes later, the applicant told the SRO that he had made a mistake, "it was an instrument failure, -464 failed high." During post-scenario follow-up questions, the applicant stated definitively that -464 had failed high, and also mentioned that he had some difficulty determining the failure during the scenario run time.

LACK OF ABILITY/KNOWLEDGE:

As detailed above, the applicant demonstrated a weakness in ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation (K/A G2.1.7 – RO 4.4). The applicant made one non-critical error associated with this rating factor, and was therefore evaluated with a score of "2" for this rating factor.

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

CROSS REFERENCE:

2.b. Procedures/Tech Specs – Procedure Compliance

SCENARIO:

Scenario 4, Event 1.

EVENT DESCRIPTION:

Commence Ramp up from 4% to 12% power.

EXPECTED ACTION/RESPONSE:

Farley procedure NMP-OS-001, "Reactivity Management Program," requires peer checks be used during normal evolutions that affect reactivity. Step 6.1.2.3 of NMP-OS-001 states: "The following administrative requirements ensure that nuclear safety is maintained during activities that affect reactivity: • Planned reactivity manipulations are peer checked...." Step 6.3.6 of NMP-OS-001 restates the requirement as follows: "Peer checks will be used for reactivity changes, with the exception of conditions described in step 6.3.8." Step 6.3.8 details the exception to the peer check requirement as only occurring during transient conditions that require a rapid reduction in reactor power. Therefore, in accordance with NMP-OS-001, the applicant, as Balance of Plant operator (BOP), was expected to obtain a peer check when he manipulated the steam dump controller (changing steam demand, which impacts reactivity and reactor power); and the applicant was expected to perform the peer check function when the Reactor Operator (RO) moved control rods.

APPLICANT ACTION/RESPONSE:

During this event, which was a normal evolution to raise power, the applicant manipulated the steam dump controls four times without obtaining a peer check. The RO also moved control rods without obtaining a peer check from the applicant. During post-scenario follow-up questioning, the examiner asked the applicant if there were any administrative requirements associated with adding positive reactivity to the core. The applicant stated that the team should have used peer checks while they were raising power, and admitted that they had not utilized peer checks during the scenario.

LACK OF ABILITY/KNOWLEDGE:

As detailed above, the applicant demonstrated a weakness in knowledge of procedures, guidelines, or limitations associated with reactivity management (K/A G2.1.37 – RO 4.3). The applicant made three non-critical errors associated with this rating factor, and was therefore evaluated with a score of "1" for this rating factor.

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

CROSS REFERENCE:

2.b. Procedures/Tech Specs – Procedure Compliance

SCENARIO:

Scenario 4, Event 4.

EVENT DESCRIPTION:

PT-464 (Steam Header Pressure) fails high, steam dumps open until shut by P-12, SGFP speed increases, manual control required.

EXPECTED ACTION/RESPONSE:

The applicant, as Balance of Plant operator (BOP), was expected to correctly diagnose the PT-464 failure by observing various control room indications, including: steam dump demand indicator TI-408 increasing, additional steam dump valves opening, steam flow increasing on all steam generators (S/G), steam header pressure indicator PI-464A increasing to 1200 psig (pegged high), reactor coolant system average coolant temperature (Tavg) decreasing, and reactor power increasing. Once the failure was identified, the applicant was expected to correctly perform the immediate operator actions for this failure as stated in Farley procedure FNP-1-AOP-100, "INSTRUMENTATION MALFUNCTION." The immediate operator actions for a PT-464 failure are listed as follows:

1 [CA] Maintain SG level at the referenced level of 65%.

1.1 IF required,
THEN take manual control of SGFP speed control

SGFP master controller

☐ SK-509A

OR

SGFP individual controllers as needed.

☐ SK-509B

☐ SK-509C

1.2 IF required,
THEN take manual control of the affected feedwater regulating valves or bypass valves.

☐ 1A SG FW FLOW FK-478

☐ 1B SG FW FLOW FK-488

☐ 1C SG FW FLOW FK-498

OR

☐ 1A SG BYPASS FLOW FK-479

☐ 1B SG BYPASS FLOW FK-489

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APPLICANT DOCKET NUMBER (b)(6)

[] IC SG BYPASS FLOW FK-499

1.3 IF a loss of main feedwater has occurred,
THEN perform the actions required by
FNP-1-AOP-13.0, LOSS OF MAIN
FEEDWATER.

Therefore, in accordance with AOP-100, the applicant was expected to first place SK-509A to manual and attempt to maintain steam generator (S/G) levels; then to place the feedwater regulating valves to manual, if required to control S/G levels; and then to perform actions of AOP-13.0 if a loss of main feedwater had occurred.

APPLICANT ACTION/RESPONSE:

When the failure occurred, the Reactor Operator (RO) announced that Pressurizer (PZR) pressure and PZR level were falling rapidly, and the Senior Reactor Operator (SRO) announced that -464 was high, and directed performance of immediate operator actions of AOP-100. The applicant, as BOP, initially took all bypass/low flow feed regulating valves (FCV-479, -489, and -499) to manual and attempted to stabilize S/G level. After approximately two minutes, the applicant announced that immediate operator actions were complete. The SRO then formally entered the AOP-100 procedure, and while verifying the immediate operator actions, the SRO directed the applicant to place SK-509A to manual to control SGFP speed. The applicant complied with the SRO direction, placed the controller in MANUAL, and lowered SGFP speed. During post-scenario follow-up questioning the examiner asked the applicant, what are the immediate operator actions for a PT-464 failure? The applicant stated that he had not taken controller -509A to manual right away, and that he should have.

LACK OF ABILITY/KNOWLEDGE:

As detailed above, the applicant demonstrated a weakness in ability to perform without reference to procedures those actions that require immediate operation of system components and controls (K/A G2.4.49 - RO 4.6). The applicant made three non-critical errors associated with this rating factor, and was therefore evaluated with a score of "1" for this rating factor.

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APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

2.b. Procedures/Tech Specs – Procedure Compliance

SCENARIO:

Scenario 4, Event 7.

EVENT DESCRIPTION:

After ESP-0.1 entry, dual unit Loss of Offsite Power (LOSP), ECP-0.0 LOSS OF ALL AC POWER entry required. 1B DG fails to auto start, 2C or 1B DG must be started.

EXPECTED ACTION/RESPONSE:

The team was expected to restore electrical power using 2C DG in accordance with ECP-0.0. Once an electrical bus was restored, step 5.3.8 of ECP-0.0 states: "IF 1F OR 1G 4160V bus energized, THEN go to procedure and step in effect and implement function restoration procedures as necessary." Therefore, at step 5.3.8, the team was expected to transition back to ESP-0.1, which was the procedure in effect before the LOSP.

APPLICANT ACTION/RESPONSE:

When the Senior Reactor Operator (SRO) reached step 5.3.8, he announced "exiting ECP-0.0, entering ESP-0.1." At this announcement, both the applicant and the Reactor Operator (RO) questioned this procedural transition. The applicant recommended a transition to ECP-0.1 (LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED) instead of a transition back to ESP-0.1 (REACTOR TRIP RESPONSE). The SRO showed the applicant and the RO the step in the procedure, convinced them that ESP-0.1 was the correct transition, and the team re-entered ESP-0.1. During post-scenario follow-up questioning, the examiner asked the applicant why he recommended ECP-0.1. The applicant stated that he was wrong, and that ESP-0.1 was the correct transition.

LACK OF ABILITY/KNOWLEDGE:

As detailed above, the applicant demonstrated a weakness in knowledge of the organization of the operating procedures network for normal, abnormal, and emergency evolutions (K/A G2.4.5 – RO 3.7). The applicant made three non-critical errors associated with this rating factor, and was therefore evaluated with a score of "1" for this rating factor.

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

CROSS REFERENCE:

3.c. Control Board Operations – Manual Control

SCENARIO:

Scenario 5, Event 4.

EVENT DESCRIPTION:

1A Steam Generator (S/G) tube leak – 25 gpm over 5 min and stabilizes. Commence ramp off line.

EXPECTED ACTION/RESPONSE:

Upon receiving the indications of a tube leak, the team was expected to enter AOP-2.0, "STEAM GENERATOR TUBE LEAKAGE," and estimate the magnitude of the leakage. The 25 gpm leak will be sufficient to require a plant shutdown to less than 50% power in a one-hour time frame. It was expected that the applicant, as Balance-of-Plant operator (BOP), would lower turbine load at a rate of approximately 6 MegaWatts electric per minute (MWe/min) in the TURB MAN mode using the GV CLOSE pushbutton.

APPLICANT ACTION/RESPONSE:

The Senior Reactor Operator (SRO) directed the applicant to "coordinate a ramp at 6 MWe/min," and the applicant began to lower turbine load using the GV CLOSE pushbutton. However, the applicant was not able to maintain the turbine ramp rate, and began to be confused by his indications of steadily lowering governor valve position, and no corresponding change in turbine output (MWe). Over a 17 minute period, the applicant lowered turbine load by approximately 12 MWe, and informed the SRO that the turbine was not behaving as expected. During post-scenario follow-up questioning, the examiner asked the applicant why he believed the turbine was not responding as expected. The applicant stated that he had not operated in TURB MAN a lot during training, but he did not believe that the response of the turbine was correctly modeling the plant because he was closing the governor valves a lot without observing a corresponding change in MWs. The examiner later verified with the simulator and training personnel that the simulator was functioning properly, and that there was a large "dead band" with the turbine governor valves operating in the region they were in. Therefore, the response of the simulator was in accordance with the expected turbine response in the plant.

LACK OF ABILITY/KNOWLEDGE:

As detailed above, the applicant demonstrated a weakness in ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels (K/A G2.2.2 – RO 4.6). The applicant made one non-critical error associated with this rating factor, and was therefore evaluated with a score of "2" for this rating factor.

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

CROSS REFERENCE:

4.a. Communications - Provide Information

SCENARIO:

Scenario 5, Event 1.

EVENT DESCRIPTION:

Load rejection of 175 MW, AOP-17 entry required.

EXPECTED ACTION/RESPONSE:

After stabilizing plant load following a rapid load rejection, the applicant, as Balance-of-Plant operator (BOP), was expected to remove controller "windup" from the feed regulating valves (FRV). The applicant was expected to take the FRV controllers to manual, match demand, and then return the FRV controllers to automatic operation.

APPLICANT ACTION/RESPONSE:

The applicant announced "taking FRVs to manual for windup," and placed all three controllers to manual, as expected. However, after matching demand signals, the applicant stated "FRVs to auto," which the Senior Reactor Operator (SRO) applicant mis-understood to mean that the FRVs had been restored to automatic operation. The SRO responded "[I understand that] FRVs are in auto," at which point the applicant corrected himself and stated, "I'm sorry. Request permission to place FRVs back in auto." The SRO then granted permission.

LACK OF ABILITY/KNOWLEDGE:

As detailed above, the applicant demonstrated a weakness in ability to make accurate, clear, and concise verbal reports (K/A G2.1.17). The applicant made three non-critical errors associated with this rating factor, and was therefore evaluated with a score of "1" for this rating factor.

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APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

4.a. Communications -- Provide Information

SCENARIO:

Scenario 4, Event 4.

EVENT DESCRIPTION:

PT-464 (Steam Header Pressure) fails high, steam dumps open until shut by P-12, SGFP speed increases, manual control required.

EXPECTED ACTION/RESPONSE:

Farley procedure NMP-OS-007-001, "Conduct of Operations Standards and Expectations," contains the guidance for alarm response communications. Specifically, step 6.9.2.1, titled General Alarm Response, states: "Operators respond to all alarms, both expected and unexpected. Unexpected alarms are communicated to the appropriate control room personnel. All alarms are treated as valid indicators until proven otherwise." Furthermore, step 6.9.2.3, titled Control Room Annunciator Response, states: "The operating crew is aware of main control room annunciator status. Operators anticipate annunciators that alarm due to testing or as a result of normal plant operating activities. The operating crew responds to annunciators per applicable alarm response procedures. Directed, three way communications between an operator and another member of the crew (normally the Shift Supervisor) is utilized for annunciator response."

Therefore, in accordance with NMP-OS-007-001, as the Balance-of-Plant operator (BOP), the applicant was expected to announce unexpected alarms that were occurring due to difficulties in controlling Steam Generator (S/G) levels.

APPLICANT ACTION/RESPONSE:

During this event, as the applicant attempted to obtain control of S/G levels, individual alarms for SG LEVEL DEV came in and cleared numerous times. When these alarms came in, the applicant silenced the alarms, but did not announce the alarm to anyone in the control room. Then, at one point, all three SG LEVEL DEV alarms came in and stayed locked in. The applicant again silenced the alarms, but did not announce them.

LACK OF ABILITY/KNOWLEDGE:

As detailed above, the applicant demonstrated a weakness in ability to make accurate, clear, and concise verbal reports (K/A G2.1.17). The applicant made three non-critical errors associated with this rating factor, and was therefore evaluated with a score of "1" for this rating factor.

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

CROSS REFERENCE:

4.a. Communications – Provide Information

SCENARIO:

Scenario 4, Event 8.

EVENT DESCRIPTION:

Large Break Loss-of-Coolant Accident (LBLOCA) occurs after second return to ESP-0.1 after LOSP. 8803A and B fail to open, 8820B does not open, and containment cooler does not start.

EXPECTED ACTION/RESPONSE:

Farley procedure NMP-OS-007-001, "Conduct of Operations Standards and Expectations," states the following at step 6.20.2.5: "Operators are generally expected to take manual action to address ESF components which fail to actuate when required (site specific exceptions are allowed). No permission is required prior to acting. The Shift Supervisor should be informed as soon as possible after initiating the manual action."

Therefore, in accordance with NMP-OS-007-001, as the Balance-of-Plant operator (BOP), the applicant was expected to inform the Senior Reactor Operator (SRO) after manually actuating Safety Injection (SI) upon recognition that SI was required and was not (automatically) actuated.

APPLICANT ACTION/RESPONSE:

During this event, the applicant recognized that RCS pressure was 37 psig, and that containment pressure was 37 psig. The applicant then recognized that SI did not actuate automatically. At this point, the applicant correctly manually actuated SI, and verified proper operation of SI components. However, the applicant did not announce the status of SI to the team, and did not inform the SRO that he had manually actuated SI.

LACK OF ABILITY/KNOWLEDGE:

As detailed above, the applicant demonstrated a weakness in ability to make accurate, clear, and concise verbal reports (K/A G2.1.17). The applicant made three non-critical errors associated with this rating factor, and was therefore evaluated with a score of "1" for this rating factor.

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Ex6

U.S. Nuclear Regulatory Commission Individual Examination Report					
Applicant's Name: (b)(6)			Docket Number: (b)(6)		
<input type="checkbox"/>	<input type="checkbox"/>	Examination Type (Initial or Retake)	Facility Name: Farley		
<input type="checkbox"/>	<input type="checkbox"/>	Reactor Operator	<input checked="" type="checkbox"/>	Hot	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Senior Reactor Operator (SRO) Instant	<input type="checkbox"/>	Cold	
<input type="checkbox"/>	<input type="checkbox"/>	SRO Upgrade	<input type="checkbox"/>	BWR	
<input type="checkbox"/>	<input type="checkbox"/>	SRO Limited to Fuel Handling	<input checked="" type="checkbox"/>	PWR	

Ex6

Written Examination Summary					
NRC Author/Reviewer: M. Bates			RO/SRO/Total Exam Points 74 / 25 / 99		
NRC Grader/Reviewer: M. Meeks			Applicant Points 60 / 18 / 78		
Date Administered: April 13, 2010			Applicant Grade (%) 81.08 / 72.00 / 78.78		
Operating Test Summary					
Administered by: M. Bates			Date Administered: April 5 - 9, 2010		
Walk-Through (Overall)					S
Administrative Topics					S
Simulator Operating Test					S
Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination		X		Michael R. Meeks M. Meeks	05/27/2010
Operating Test	X			M. Bates M. Bates	05/27/2010
Final Recommendation		X		G. L. [Signature] G. L. [Signature]	05/27/2010
License Recommendation					
<input checked="" type="checkbox"/>	Issue License	Supervisor's Signature Malcolm Widmann			Date 05/28/10
<input type="checkbox"/>	Deny License				

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Ex6

Applicant Docket Number: (b)(6)		
Walk-Through Grading Details	Evaluation (S or U)	Comment Page Number
Administrative Topics		
a. Verification of initial conditions prior to core alterations	S	
b. Conduct a safety shutdown assessment and determine time to saturation (Administered by M. Meeks)	S	
c. Perform a shutdown margin calculation in modes 1 & 2 for a stuck rod (Administered by M. Meeks)	S	
d. Calculate the maximum permissible stay time within the emergency dose limits (Administered by M. Meeks)	S	
e. Make Initial Notifications as required for an Emergency (Administered by M. Meeks)	S	
Systems - Control Room		
a. Perform an emergency boration	S	
b. Align PRF system for a large break LOCA (Administered by M. Meeks)	S	
c. Perform required actions to transfer to simultaneous hot and cold leg recirculation	S	
d. Perform required actions in response to RCP seal failures (Administered by G. Laska)	S	
e. Start the containment cooling system (Administered by M. Meeks)	S	4
f. Start 1C DG from the EPB and align to supply 1F 4160V bus (Administered by G. Laska)	S	
g. Perform corrective actions in response to a CCW pump trip (Administered by M. Meeks)	S	
Systems - In-Plant		
i. Conduct a waste gas release (Administered by G. Laska)	S	
j. Operate the TDAFW pump locally without control power	S	
k. Place the swing battery charger in service	S	

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Ex 6

Applicant Docket Number: (b)(8)					
Senior Reactor Operator Simulator Operating Test Grading Details					
Competencies/ Rating Factors (RFs)	RF Weights	RF Scores	RF Grades	Comp. Grades	Comment Page No.
1. Interpretation/Diagnosis					
a. Recognize & Attend	0.20	3	0.60		
b. Ensure Accuracy	0.20	3	0.60	2.40	
c. Understanding	0.30	1	0.30		5, 6, 7
d. Diagnose	0.30	3	0.90		
2. Procedures					
a. Reference	0.30	3	0.90		
b. EOP Entry	0.30	3	0.90	2.60	
c. Correct Use	0.40	2	0.80		8
3. Control Board Operations					
a. Locate & Manipulate	0.34	3	1.02		
b. Understanding	0.33	2	0.66	2.67	9
c. Manual Control	0.33	3	0.99		
4. Communications					
a. Clarity	0.40	3	1.20		
b. Crew & Others Informed	0.40	3	1.20	3.00	
c. Receive Information	0.20	3	0.60		
5. Directing Operations					
a. Timely & Decisive Action	0.30	3	0.90		
b. Oversight	0.30	3	0.90	2.60	
c. Solicit Crew Feedback	0.20	3	0.60		
d. Monitor Crew Activities	0.20	1	0.20		10, 11
6. Technical Specifications					
a. Recognize and Locate	0.40	3	1.20		
b. Compliance	0.60	3	1.80	3.00	

[Note: Enter RF Weights (nominal, adjusted, or 0.00 if not observed (N/O)), RF Scores (1, 2, 3, or N/O), and RF Grades from Form ES-303-4 and sum to obtain Competency Grades.]

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

CROSS REFERENCE:

Systems - Control Room "e"

JPM/TASK:

Start Up the Containment Cooling System

EXPECTED ACTION/RESPONSE:

The applicant was directed to start up the Containment Cooling System in accordance with procedure FNP-1-SOP-12.1, "CONTAINMENT AIR COOLING SYSTEM," section 4.1, "Containment Cooling System Startup." Step 4.1.9 of this procedure states:

- 4.1.9 Operate the containment dome recirculation fans and containment coolers as necessary to maintain containment temperature below 120°F. (See section 4.7 for shifting containment cooler fan speeds.)

When the applicant reached this step, the applicant was expected to use diverse indications of containment air temperature to verify that temperatures were well below 120 °F (average containment air temperature was ~90 °F during the JPM) and continue with the remaining steps of the procedure to place the containment cooling system in service.

APPLICANT ACTION/RESPONSE:

When the applicant reached step 4.1.9, he initially checked containment temperatures on a Yokogawa digital recorder located on a back panel (the "BOP Panel"). The applicant identified that one channel of containment temperature—3192F—was reading ~200 °F, although the remaining containment temperature channels were all reading ~90 °F. The applicant verbalized to the examiner, who was acting as the Senior Reactor Operator (SRO), that he was concerned about this temperature channel, which was reading high; and the applicant referenced Technical Specifications to determine if entry conditions were met based on a high containment temperature. In fact, channel 3192F was correctly indicating local containment temperature at the pressurizer steam space area. Also, the applicant did not check an operator aid (placard) at the Yokogawa digital recorder that identified the 3192F channel as a local temperature at the pressurizer steam space.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to monitor in the control room containment readings of temperature related to the containment cooling system (K/A 022A4.05). However, the applicant was able to successfully complete the assigned task, and was evaluated with an overall satisfactory grade for this JPM.

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

CROSS REFERENCE:

1.c. Interpretation/Diagnosis – Understanding

SCENARIO:

Scenario 3, Event 3

EVENT DESCRIPTION:

Main turbine lube oil temperature controller CP-4055 auto output failure. Turbine vibrations increase to 8 mils.

EXPECTED ACTION/RESPONSE:

The applicant, as SRO, was expected to recognize the indications of an auto output failure of CP-4055, including: (1) TI-4020 Turbine Bearing Oil Temperature increasing, (2) CP-4055 Turbine Bearing Oil Temperature controller demand failing low, and (3) DEH TROUBLE alarm that results in LUBE OIL COOLER OUT alarm on the DEH sub screen. The applicant was also expected to understand how a failure of the lube oil controller could impact the turbine, causing high vibrations. The applicant was then expected to direct the BOP to take manual control of CP-4055 to lower the oil temperature by opening the valve.

APPLICANT ACTION/RESPONSE:

After the DEH TROUBLE alarm was received, the BOP did not take manual control of CP-4055 and the applicant did not recommend taking manual control. Neither the applicant nor the BOP stated the correct diagnosis during the scenario. During post-scenario follow-up questioning, the examiner asked the applicant to explain the cause of the turbine problems. The applicant explained that he attributed the problems to the seismic event that occurred earlier in the scenario. During post-scenario questioning, the applicant did not indicate the correct diagnosis of the failure.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a deficiency in his ability to interpret indications and understand how the lube oil controller could affect the turbine (K/A G2.2.44). The applicant made three non-critical errors associated with this rating factor, and was therefore evaluated with a score of "1" for this rating factor.

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APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

1.c. Interpretation/Diagnosis – Understanding

SCENARIO:

Scenario 5, Event 1

EVENT DESCRIPTION:

Load rejection of 175 MW, AOP-17 entry required.

EXPECTED ACTION/RESPONSE:

Following a load rejection with control rods initially in automatic, Tavg will be higher than Tref, and Delta I values will be lower (more negative) than the target band. The applicant was expected to borate to lower Tave and raise Delta I (make less negative), and bring Delta I toward the target value.

APPLICANT ACTION/RESPONSE:

After the runback, the applicant recommended to the SRO that they use rod insertions to control Delta I. The applicant then made several rod insertions and pushed Delta I more negative. The SRO also stated to the applicant that they would insert rods and dilute to control Delta I and the applicant did not correct the SRO. It was not until the BOP corrected their actions that the applicant understood their mistake.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in his ability to understand how rod insertion would impact the axial power shape of the reactor (K/A G2.1.7). The applicant made three non-critical errors associated with this rating factor, and was therefore evaluated with a score of "1" for this rating factor.

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APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

1.c. Interpretation/Diagnosis – Understanding

SCENARIO:

Scenario 3, Event 3

EVENT DESCRIPTION:

Charging low flow due to degraded 1C charging pump head

EXPECTED ACTION/RESPONSE:

Upon receipt of annunciators EA2 (CHG HDR HI-LO) and DD1 (RCP SEAL INJ LO) the applicant, as SRO, was expected to observe the low flow conditions, low charging pump discharge pressure, low pump amps, rising Volume Control Tank (VCT) level, decreasing pressurizer level, and based on these indications direct actions that indicate an understanding of how plant systems and components operate and interact. Specifically, the applicant was not expected to direct a boration when the operating charging pump discharge pressure would not allow for boron to be injected into the RCS.

APPLICANT ACTION/RESPONSE:

The RO acknowledged annunciators EA2 and DD1 being in alarm and attempted to open FCV 122 to increase seal injection and charging flow. The RO also attempted to open HIK-137 to increase seal injection flow. None of these were successful. With the plant ramping down at 3 MW/Min, the RO continued to adjust reactivity with control rods, and requested to borate 30 gallons. The applicant, as SRO, gave permission for the RO to borate. The RO asked the BOP for a peer check on the boration line-up. The BOP, upon review of the RO's portion of the control board asked how they were going to get the acid into the RCS. The applicant then realized that the running charging pump did not have sufficient pump discharge head to make up to the RCS.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in his ability to direct control board manipulations that were indicative of correct understanding of system and component interactions (K/A 2.1.7). The applicant made three non-critical errors associated with this rating factor, and was therefore evaluated with a score of "1" for this rating factor.

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

CROSS REFERENCE:

2.c. Procedures - Correct Use

SCENARIO:

Scenario 5, Event 5

EVENT DESCRIPTION:

PK-444A failed low, PORV-444B failed open, but could be isolated with the associated block valve.

EXPECTED ACTION/RESPONSE:

The applicant, as RO, was expected to diagnose the PK-444A failure, attempt to close PORV-444B, then close the associated block valve, which are immediate operator actions of AOP-100, Instrumentation Malfunctions. The applicant was expected to perform these actions without being directed by the SRO.

APPLICANT ACTION/RESPONSE:

The applicant, diagnosed the failure, then with his hand on the switch for PORV-444B, looked over his shoulder for several seconds prior to getting direction from the SRO to perform his immediate operator actions. The applicant performed the correct actions, but did not perform them without being prompted by the SRO.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in his ability to perform his immediate operator actions without being prompted by the SRO (K/A 2.4.49). The applicant made one error associated with this rating factor; therefore, his performance was graded as a "2" for this rating factor.

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APPLICANT DOCKET NUMBER (b)(6)

Ex 6

CROSS REFERENCE:

3.b. Control Board Operations – Understanding

SCENARIO:

Scenario 5, Event 7

EVENT DESCRIPTION:

Failure of reactor to trip.

EXPECTED ACTION/RESPONSE:

The applicant, as RO, was expected to place control rods in automatic after the reactor did not trip, thus allowing them to initially insert at 72 steps per minute. The applicant was then expected to manually insert rods when the rod speed slowed.

APPLICANT ACTION/RESPONSE:

The applicant initially inserted rods in manual after the reactor trip. The SRO then directed the applicant to place the rods in auto approximately 50 seconds after the unsuccessful reactor trip. The applicant then placed the rods in automatic until the rod speed slowed, at which time he re-initiated his manual insertion. The manual insertion rate is 48 step per minute, versus the 72 steps per minute that would have been obtained had he initially allowed rods to insert in automatic. The applicant had the opportunity to insert negative reactivity at a faster rate following the unsuccessful reactor trip.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in his ability to understand system operation with his initial manual insertion of control rods after the unsuccessful reactor trip (K/A 2.1.7). The applicant made one error associated with this rating factor; therefore, his performance was graded as a "2" for this rating factor.

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APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

5.d. Directing Operations – Monitor Crew Activities

SCENARIO:

Scenario 3, Event 1/ Scenario 3, Event 2

EVENT DESCRIPTION:

Seismic event/alarm Operating Basis Earthquake (OBE) exceeded/PK-145 fails high in automatic, letdown pressure controller failure causes PCV-145 to close.

EXPECTED ACTION/RESPONSE:

The applicant, as SRO, was expected to direct a normal plant shutdown using Unit Operating Procedure (UOP) 3.1 in response to exceeding the design basis earthquake. In part, UOP 3.1 directs the operators to maintain $T_{ave} \pm 1^\circ F$ from T_{ref} , using boration or rod insertion. With letdown isolated due to PCV-145 failure, the crew was expected to use control rods to control RCS temperature on the unit ramp down.

APPLICANT ACTION/RESPONSE:

The applicant, after team discussions, including the intent to place the unit in mode 3 (shutdown) gave permission to the RO to dilute 40 gallons to the RCS to raise temperature. (With T_{ave} slightly lower than T_{ref} , the RCS temperature would lead T_{ref} during the power reduction). When letdown was isolated due to the PCV-145 failure the applicant requested to borate 30 gallons, as well as drive control in several times to lower temperature. (Initial temperature increase was due to the 30 gallon dilution). With letdown being removed from service, boration to the RCS was a very slow process (all addition would essentially be through the RCP seal injection lines).

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in his ability to direct correct and timely control board manipulations using the appropriate methods of reactivity control (K/A G2.1.9). The applicant made two non-critical errors associated with this rating factor, and was therefore evaluated with a score of "1" for this rating factor.

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APPLICANT DOCKET NUMBER (b)(6)

CROSS REFERENCE:

5.d. Directing Operations – Monitor Crew Activities

SCENARIO:

Scenario 4, Event 2

EVENT DESCRIPTION:

FK-499, Bypass FRV, fails high

EXPECTED ACTION/RESPONSE:

The applicant, as SRO, was expected to direct the BOP to take manual control of 1C steam generator level to avoid reaching a high level condition in the steam generator.

APPLICANT ACTION/RESPONSE:

The applicant, after assisting with the diagnosis, directed the BOP to perform immediate operator actions of AOP-100, Instrumentation Malfunction, approximately one minute after the malfunction was apparent. Approximately one and a half minutes after the malfunction was apparent, the applicant entered AOP-13, Condensate and Feedwater Malfunction. Then almost two minutes after the malfunction was apparent, the applicant directed the BOP to take manual control of steam generator levels. The crew then reached a high level condition in the steam generator shortly thereafter and the applicant directed a reactor trip.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in his ability to direct correct and timely control board manipulations to avoid reaching a high level condition in the 1C steam generator (K/A G2.1.9). The applicant made two non-critical errors associated with this rating factor, and was therefore evaluated with a score of "1" for this rating factor.

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