U.S. Nuclear Regulatory Commission Individual Examination Report 'B'					
Applicant's Name: [redacted]			Docket Number: [redacted]		
I	R	Examination Type (Initial or Retake)	Facility Name: **Vogtle**		
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) **Daniel X. Bacon**	RO/SRO/Total Exam Points: **73 / N/A / 73**
NRC (Grader)/Reviewer: **Phillip G. Capehart**	Applicant Points: **58 /NA /58**
Date Administered: **04/01/2011**	Applicant Grade (%): **79.45 / NA / 79.45**

Operating Test Summary	
Administered by: **Michael K. Meeks**	Date Administered: **03/16 – 24/2011**
Walk-Through (Overall)	S
Administrative Topics	S
Simulator Operating Test	S

Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination		X		Phillip G. Capehart	05/02/2011
Operating Test	X			Michael K. Meeks	05/02/2011
Final Recommendation		X		Phillip G. Capehart	05/02/2011

License Recommendation			
	Issue License		Date
✓	Deny License	Malcolm T. Widmann	05/02/11

Applicant Docket Number: [redacted]

Walk-Through Grading Details	Evaluation (S or U)	Comment Page Number
Administrative Topics		
a. Critical Safety Function Status Tree Evaluation	U	4
b. AFD Monitoring (Administered by P. Capehart)	S	
c. Determine mode change requirements	S	
d. Stay time calculation for emergency exposure to protect valuable equipment (Administered by J. Hopkins)	S	
e. NA		
Systems - Control Room		
a. Emergency Borate due to Rods below insertion limits (RIL) (Administered by P. Capehart)	S	5
b. Establish Safety Grade Letdown (Administered by P. Capehart)	S	
c. Depressurize RCS to Reduce Break Flow to Ruptured Steam Generator-Normal Pressurizer Spray Not Available (Administered by P. Capehart)	S	6
d. Isolate a Faulted Steam Generator (Administered by J. Hopkins)	S	
e. Place Containment Hydrogen Monitors in service using 13130-1 (Administered by J. Hopkins)	S	7
f. DG Parallel Operation with voltage regulator failure (Administered by P. Capehart)	S	
g. Perform Power Range NI ACOT	S	8
h. Place Containment Main Purge in Service (Administered by P. Capehart)	U	9
Systems - In-Plant		
i. Establish RWST Gravity Drain Through RHR Pumps	S	10
j. Response to the Inability to Reset or Block SI (Administered by J. Hopkins)	S	
k. Locally Remove Diesel Generator From Service (Administered by J. Hopkins)	S	

Applicant Docket Number: [redacted]

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**	11,12
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**	13-15
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**	16
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.]

CROSS REFERENCE:

Administrative JPM "a"

JPM/TASK:

Monitor / Evaluate CSFSTs—Integrity

EXPECTED ACTION/RESPONSE:

Given a data sheet listing various plant parameters and data points, the applicant was expected to properly identify the status of all Critical Safety Function Status Trees (CSFSTs) in accordance with 19200-C, "F-0 CRITICAL SAFETY FUNCTION STATUS TREES." The applicant was expected to evaluate the F-0.1, SUBCRITICALITY, status tree as follows:

(1) Power Range Greater than 5%? No – Power Range (PR) Nuclear Instruments (NIs) were given as 0% on all four channels;
(2) Intermediate Range (IR) Start-Up-Rate (SUR) Positive? No – IR SUR were given as -0.1 Decades Per Minute (DPM) and -0.12 DPM;
(3) Int. Range P-6 Present? Yes – IR NI readings were given as $3.0X10^{-4}$% and $3.2X10^{-4}$%, which are both above the nominal P-6 interlock setpoint of $2.0X10^{-5}$% as listed in Technical Specifications;
(4) Int. Range SUR Greater Than -0.2 dpm? Yes – IR SUR were given as -0.1 DPM and -0.12 DPM.

This flow path directs the operator to transition to YELLOW Path procedure 19212-C, "FR-S.2 RESPONSE TO LOSS OF CORE SHUTDOWN." Correctly evaluating the SUBCRITICALITY status tree was a critical step in the JPM.

APPLICANT ACTION/RESPONSE:

The applicant answered the (3) Int. Range P-6 Present? decision block as "No," and ultimately declared that the SUBCRITICALITY critical safety function was "SAT" (Green). The applicant did not correctly perform a critical step of the JPM. Therefore, the applicant did not successfully complete the JPM.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of knowledge of the parameters and logic used to assess the status of safety functions, such as reactivity control, core cooling and heat removal, reactor coolant system integrity, and containment conditions (K/A G2.4.21). Specifically, the applicant did not correctly evaluate the SUBCRITICALITY critical safety function status tree

CROSS REFERENCE:

Simulator JPM "a"

JPM/TASK:

Emergency Borate due to Rods below insertion limits (RIL)

EXPECTED ACTION/RESPONSE:

The applicant was directed to emergency borate the RCS using 13009-1 to clear the rod bank Lo-Lo Limit alarm. At step 4.9.1.1, the applicant was expected to start a Boric Acid Transfer Pump (BAT), realize that the BAT pump trips and therefore no BAT is available and proceed to section 4.9.3 to align the RWST to the charging pumps. At step 4.9.3.2, the applicant was expected to realize that after attempting to open 1-LV-0112D that he should continue with the next bulleted step and open 1-LV-0012E. Since these valves are in parallel, the applicant was expected to realize at this point that a flow path is established from the RWST to the charging pump suction and continue with the remaining steps.

APPLICANT ACTION/RESPONSE:

The applicant failed to realize at step 4.9.1.1 that the BAT tripped upon starting and proceeded to the step 4.9.1.2. This step opened the Emergency Borate valve (1-HV-8104). The applicant noted that there was no emergency boration flow indicated on 1-FI-0183A and proceeded to step 4.9.1.7 to start a 2nd BAT pump. The applicant noted at this time that the original BAT pump that was started earlier had tripped and proceeded to section 4.9.3. The applicant did not back out of section 4.9.1 and left the emergency borate valve (1-HV-8104) open. A follow up question was asked if this valve being left open robbed flow from the emergency boration flow path. The applicant stated at this time that he believed it did. A later review of the P&ID showed that it did not impact the flow path from the RWST to the RCS via the charging pumps. At step 4.9.3.2, the applicant failed to realize that he should continue to the next bulleted step and attempt to open the other valve in parallel to the RWST. The applicant instead went to the next section (4.9.4). This section also required the same RWST suction valves to be opened. At this point, the applicant realized that he should go back to the previous section and attempt to open the other RWST suction valve (1-LV-0112E). The applicant successfully completed all of critical steps; therefore, the applicant was evaluated as satisfactory on this JPM.

LACK OF ABILITY/KNOWLEDGE:

The applicant displayed a weakness in his ability to verify status and operation of a system and understand how his actions affected system conditions (K/A G2.2.44). Specifically, the applicant demonstrated a lack of knowledge of the flow paths available from the RWST that establish emergency boration to the suction of the coolant charging pumps.

CROSS REFERENCE:

Simulator JPM "c"

JPM/TASK:

Depressurize RCS to Reduce Break Flow to Ruptured Steam Generator-Normal Pressurizer Spray Not Available

EXPECTED ACTION/RESPONSE:

The applicant was expected to depressurize the RCS using a PORV to at or slightly below ruptured SG pressure per 19030-C. At step 34 substep a), the applicant was expected to note that when he initially tried to arm the first available train of COPS that the PRZR PORV Block Valve did not open and proceed to the RNO column to attempt to manually open the PRZR PORV Block valve.

APPLICANT ACTION/RESPONSE:

When performing step 34 substep a), the applicant noted that when he initially tried to arm the first available train of COPS that the PRZR PORV Block Valve did not open. The applicant at that time proceeded to arm the other train of COPS and verified that the PRZR PORV Block valve opened. Performance of the RNO for step 34 a) was not critical to the performance of the JPM therefore the JPM was graded as satisfactory.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to interpret and execute procedure steps (K/A G2.1.20). Specifically, knowledge in the applicant failed to follow plant's expectation for the proper use of the EOP flow paths for an inoperable train of COPS via the arming switch.

CROSS REFERENCE:

Simulator JPM "e"

JPM/TASK:

Place Containment Hydrogen Monitors in Service

EXPECTED ACTION/RESPONSE:

The applicant was expected to place the Train A Containment Hydrogen Monitors in service using 13130-1, "Post-Accident Hydrogen Control," Section 4.2. Additionally, the applicant was expected to respond to annunciator alarms associated with placing the Train A Containment Hydrogen monitors in service. Specifically, the applicant was expected to: (1) acknowledge alarm ALB62, Window F5, CNMT H2 MON TRAIN A ALERT, (2) refer to the annunciator response procedure (ARP) and (3) determine the cause of the annunciator alarm was high hydrogen concentration in containment. The applicant was expected to determine that alarm ALB62, Window F5 was expected for the conditions in the JPM and no action was required.

APPLICANT ACTION/RESPONSE:

The applicant correctly placed the Train A Containment Hydrogen Monitors in service. When responding to Alarm ALB62, Window F5, the applicant referred to the ARP and recommended dispatching an operator to the local panel to investigate the cause of the alarm. The applicant further recommended placing the Train B Containment Hydrogen Monitors in service based on Step 3 of Section 4.0 of the ARP. Step 3 of Section 4.0 stated in part, "With the POWER ON and COMMON FAILURE lights lit on HMA, IF radiation levels permit, **dispatch** an operator to local Panel 1-1513-P5-HMA (Auxiliary Building Level B) to perform the following:"

When questioned why Step 3 of Section 4.0 applied to the current situation, the applicant stated that since the COMMON FAILURE lights lit on HMA were not lit, the step did not apply. Since containment hydrogen concentration was indicating about 8% on AI-12979 on the QMCB in the control room and since the ARP stated that high hydrogen in containment was a probable cause for the alarm, the applicant had sufficient information to determine the alarm was expected based on the plant conditions and no further action was required. Since responding to the annunciator alarm was not a critical step, the applicant's performance was rated satisfactory for this JPM.

LACK OF ABILITY/KNOWLEDGE:

The applicant displayed a lack of ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions (K/A G2.2.44). Specifically, the applicant recommended performing Step 3 of Section 4.0 of the ARP when the conditions stated in Step 3 did not apply. Additionally the applicant did not determine that annunciator alarm ALB62, Window F5, CNMT H2 MON TRAIN A ALERT, was expected when placing the containment hydrogen monitor in service.

CROSS REFERENCE:

Simulator JPM "g"

JPM/TASK:

Perform NIS Power Range COT

EXPECTED ACTION/RESPONSE:

The applicant was expected to correctly perform the Power Range Quarterly Analog COT for N-43, in accordance with Vogtle procedure 14425C-1, "POWER RANGE QUARTERLY ANALOG CHANNEL NI 43 OPERATIONAL TEST." In accordance with step 5.1.17 of this procedure, the applicant was expected to slowly rotate the N-43 DETECTOR A potentiometer until the OVERPOWER ROD STOP Drawer Light just illuminates OR until fully clockwise, then record the "as found" trip setpoint as read on the 1-N-43 PERCENT FULL POWER meter. In accordance with the JPM task standard, the acceptable range of values was 104-106%. Proper performance of this step was a critical step in the JPM.

APPLICANT ACTION/RESPONSE:

When performing step 5.1.17, the applicant initially turned the potentiometer past the point where the OVERPOWER ROD STOP light had just illuminated, and subsequently recorded a value of 106.5% power. The applicant then notified the examiner (acting as Senior Reactor Operator {SRO}) that [the applicant] believed the value was in error, because [the applicant] had turned the potentiometer too far. The examiner asked the applicant for a recommendation. The applicant recommended resetting the rod stop, and then re-performing step 5.1.17. The examiner gave the applicant permission to perform the recommended action. At this point, the applicant reset the OVERPOWER ROD STOP light using step 5.1.23 of the procedure, and re-performed step 5.1.17 correctly. The applicant recorded a value of 106% after re-performing the step.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to manipulate the console controls as required to operate the facility, as related to the Nuclear Instrumentation system (K/A 015G2.2.2). The applicant initially missed a critical step, but later performed it correctly and accomplished the task standard without degrading the condition of the system or the plant. Therefore, the applicant successfully completed the JPM.

CROSS REFERENCE:

Simulator JPM "h"

JPM/TASK:

Place Containment Main Purge in Service

EXPECTED ACTION/RESPONSE:

The applicant was directed to place the Containment Main (Preaccess) Purge in service using procedure 13125-1, Containment Purge System. At step 4.1.2.1, the applicant was informed to NOT start a Main Purge Supply Fan if the Containment Equipment Hatch is open. This information was provided as part of the initial conditions for the JPM. Based on this step, the applicant was expected to mark step 4.1.2.9 as NA and NOT start the Supply Fan (Critical Step).

APPLICANT ACTION/RESPONSE:

The operator failed to readdress step 4.1.2.1 and started the Main Purge Supply Fan at step 4.1.2.9. This created a critical step in the JPM that was not met by the applicant. The failure to perform this critical step resulted in the applicant receiving a grade of unsatisfactory on this JPM.

LACK OF ABILITY/KNOWLEDGE:

The applicant displayed a lack of ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions (Generic K/A 2.2.44). Specifically, the applicant did not take the necessary actions to ensure that equipment was in the position required by procedure 13125-1, Containment Purge System.

CROSS REFERENCE:

In Plant JPM "i"

JPM/TASK:

Establish RWST Gravity Drain Through RHR Pumps to RCS Hot Legs

EXPECTED ACTION/RESPONSE:

Given a set of operationally valid initial conditions, the applicant was expected to align Unit 2 RHR Train 'A' for gravity drain at the greatest possible flow rate using Section C, "RWST GRAVITY DRAIN THROUGH RHR SUCTION LOOPS TO HOT LEGS," of Attachment A, "RWST GRAVITY DRAIN TO RCS," of Vogtle procedure 18019-C, "LOSS OF RESIDUAL HEAT REMOVAL." In accordance with the above procedural direction, the applicant was expected to properly locate and then simulate (talk-through) proper manual operation of Motor-Operated-Valves (MOVs) as follows: locally OPEN 2-HV-8812A, then locally CLOSE 2-HV-8809A.

APPLICANT ACTION/RESPONSE:

The applicant initially began to simulate OPEN valve 2-HV-8812B, then (before the examiner provided a cue) the applicant stopped and stated: "this is train 'B,' I need to align train 'A.'" The applicant then locally simulated OPEN valve 2-HV-8812A. The applicant then displayed difficulty in locating valve 2-HV-8809A, and entered several different rooms on multiple elevations attempting to locate the correct valve. The applicant was then able to locate and simulate CLOSE 2-HV-8809A. The applicant correctly performed all critical steps of the JPM and completed the assigned task; therefore, the applicant successfully completed the JPM.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to locate and operate components, including local controls, as related to a loss of RHR condition (K/A 025AG2.1.30).

CROSS REFERENCE:

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

SCENARIO/EVENT:

Scenario 4 / Event 5: PT-507 Steam Header Pressure Transmitter failed downscale low. This resulted in turbine-driven Main Feed Pump (MFPT) controls sensing a high delta-P, which caused MFPT controls to reduce the speed of the running MFPT.

EXPECTED ACTION/RESPONSE:

When PT-507 failed downscale low, the applicant, as Unit Operator (UO), was expected to recognize the following symptoms: STM GEN 1 (2, 3, 4) FLOW MISMATCH and STM GEN 1 (2, 3, 4) HI/LO LVL DEVIATION alarms in, PI-507 lowering to downscale, MFPT 'A' speed lowering, and unexplained steam flow/feed flow mismatch indication on all Steam Generators (S/Gs). The applicant was then expected to use these symptoms to properly diagnose the failure of PT-507.

APPLICANT ACTION/RESPONSE:

When PT-507 failed low, the applicant initially reported that the "Main Feed Pump master speed controller has failed" to the Shift Supervisor (SS). Approximately nine minutes after the PT-507 failure, the applicant noticed that PT-507 was downscale, and reported to the SS that the actual failure was PT-507, not the master MFP speed controller.

Following the completion of the simulator scenario, the examiner asked the applicant why it had taken so long to recognize the problem with PT-507. The applicant stated: I should have seen it sooner, but I was probably too focused on the speed controllers and did not keep up with my board scan [for the other parameters that were inputs into MFP speed control].

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation (K/A 059G2.1.7), as well as a lack of ability to identify and interpret diverse indications to validate the response of another indication (K/A 059G2.1.45), as related to the main feedwater system. 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.

CROSS REFERENCE:

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

SCENARIO/EVENT:

Scenario 5 / Event 7, 8, 9: A steam line break developed on Steam Generator (S/G) #4 inside containment, with a failure of both trains of Steam Line Isolation (SLI) to automatically isolate, and a failure of automatic Safety Injection (SI).

EXPECTED ACTION/RESPONSE:

At step nine of procedure 19000-C, the applicant, as operator at the controls (OATC), was expected to correctly evaluate wide range cold leg temperature indications at a given value and lowering (i.e., due to the RCS cool-down in progress due to the faulted S/G).

APPLICANT ACTION/RESPONSE:

The Shift Supervisor (SS) asked the applicant to check Reactor Coolant System (RCS) wide range cold leg temperatures stable at or trending to 557 °F. The applicant checked the temperatures using the trend screen on the plant computer, and reported temperatures at 470 degrees wide range and stable. The SS asked the applicant: are you sure temps are stable, should be lowering with the steam line break? The applicant checked the computer display again, and repeated that temperatures were stable. Following this report, cold leg temperatures continued to lower.

Following the completion of the simulator scenario, the examiner asked the applicant, why did you report temperatures as stable? The applicant stated: I did not notice that the time-scale on the plant computer monitor [time was displayed on the x-axis] was set very short on the display, which made the trend appear stable.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to use plant computers to evaluate system or component status, as related to a steam line break (K/A 040AG2.1.19). 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.

CROSS REFERENCE:

2. b. Procedures/Tech Specs – Procedure Compliance

SCENARIO/EVENT:

Scenario 4 / Event 6, 7, 8, 9 and 10: A Loss of All Auxiliary Feedwater (AFW) caused a RED path on HEAT SINK.

EXPECTED ACTION/RESPONSE:

In accordance with RNO step 11.a. of 19231-C, "FR-H.1 RESPONSE TO LOSS OF SECONDARY HEAT SINK," the applicant was expected to re-start the turbine-driven AFW Pump (TDAFWP) using 13610-1, "AUXILIARY FEEDWATER SYSTEM." Procedure 13610-1 specifies the following sequence in order to properly re-start the TDAFWP following an overspeed trip:

4.4.7.9 IF AFW Actuation signal is present, hold 1HS-5106A in the CLOSE position until completion of Step 4.4.7.10.
4.4.7.10 Place Handswitch 1HS-15111 (QMCB) in OPEN, THEN release.
4.4.7.11 WHEN the Trip and Throttle (T&T) Valve is fully open as indicated at MLB13-4.2 OR 1HS-15111 (QMCB), release 1HS-5106A IF applicable.

Holding 1HS-5106A in the CLOSE position allows the speed controller startup logic to reset when the T&T valve is electrically opened. When handswitch 1HS-15111 is placed in OPEN, the T&T valve latches and then opens; and steam admission valve 1-HV-5106 will open when 1HS-5106A is released if an open signal is present. An open signal (TDAFWP auto-start) will be present due to the low S/G levels on all S/Gs.

APPLICANT ACTION/RESPONSE:

The applicant, as Unit Operator (UO), was directed by the Shift Supervisor (SS) to restore feed flow with the TDAFWP. As the applicant began to work through the procedure, wide range S/G levels met the criteria for implementing "bleed and feed." However, the SS allowed the applicant to continue attempts to re-start the TDAFWP. During the first attempt to re-start the TDAFWP, the applicant initially held 1HS-5106A in the CLOSE position, but then released the 1HS-5106A switch to operate the 1HS-15111 switch. The TDAFWP failed to re-start, because the speed controller startup logic was not correctly reset.

During post-scenario follow-up questions, the examiner asked the applicant, why was there a difficulty in re-starting the TDAFWP? The applicant stated: I read the NOTES that said how to reset the overspeed interlock, but when I went to start the pump the first time, I didn't hold the switch in CLOSE to completely reset.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to interpret and execute procedure steps (K/A 061G2.1.20), and a lack of ability to perform specific system and integrated plant procedures during all modes of plant operation (K/A 061G2.1.23), as related to the AFW system. 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.

CROSS REFERENCE:

2. b. Procedures/Tech Specs – Procedure Compliance

SCENARIO/EVENT:

Scenario 4 / Event 6, 7, 8, 9 and 10: A Loss of All Auxiliary Feedwater (AFW) caused a RED path on HEAT SINK.

EXPECTED ACTION/RESPONSE:

Vogtle lesson plan LO-LP-37051-18-C rev 18, "Loss of Secondary Heat Sink," states the following concerning the need to immediately initiate "bleed and feed" when criteria is met:

4. Step 3 - If a complete loss of heat sink exists as previously defined then Bleed and Feed is immediately started.
   a. Prevent the RCS from heating to saturation conditions which could lead to ICC and core damage.

Furthermore, a CAUTION statement before step 34 of Vogtle procedure 19231-C, "FR-H.1 RESPONSE TO LOSS OF SECONDARY HEAT SINK," reads as follows: "Steps 35 thru [sic] 39 should be performed quickly in order to establish RCS heat removal by RCS bleed and feed." In accordance with the above guidance, if the criteria for "bleed and feed" was met, the operators were expected to suspend other attempts at restoring feed flow, and immediately perform the steps for "bleed and feed."

APPLICANT ACTION/RESPONSE:

The applicant, as Unit Operator (UO), was directed by the Shift Supervisor (SS), to restore feed flow with the TDAFWP. As the applicant began to work through the procedure, wide range S/G levels met the criteria for implementing "bleed and feed." However, the SS allowed the applicant to continue attempts to re-start the TDAFWP. During the first attempt to re-start the TDAFWP, the applicant initially mis-operated the 1HS-5106A switch and the 1HS-15111 switch. Because the speed controller startup logic was not correctly reset, the TDAFWP failed to re-start. While the applicant was attempting to diagnose the problem, the SS directed the board operators to stop the attempts to restart the pump, and initiate "bleed and feed." The applicant appeared frustrated with this direction, and informed the SS that the applicant was right at the step to re-start the pump, and was ready to restore feed flow. However, the SS insisted on the previous direction to initiate "bleed and feed" steps.

During post-scenario follow-up questions, the examiner asked the applicant, did you agree with the decision to implement "feed and bleed" instead of continuing to start the AFW pump? The applicant stated: I thought the higher priority was restoring auxiliary feed water flow. The examiner pointed out that "bleed and feed" criteria had been met during the scenario. The applicant stated: I was only a few switches away from restoring feed ... I still think it was the higher priority rather than going ahead with "bleed and feed."

CROSS REFERENCE:

2. b. Procedures/Tech Specs – Procedure Compliance [continued from previous page]

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation (K/A W/E05EG2.1.7); a lack of knowledge of the specific bases for EOPs (K/A W/E 05EG2.4.18); and a lack of knowledge of the operational implications of EOP warnings, cautions, and notes (K/A W/E05EG2.4.20) as specifically applied to the FR-H.1 procedure. 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.

CROSS REFERENCE:

3. b. Control Board Operations – Understanding

SCENARIO/EVENT:

Scenario 5 / Event 1: The Control Room Crew performed actions necessary to continue the Reactor startup after criticality was achieved using procedure 12003-C. The operator at the controls (OATC) will need to withdraw control rods to establish a positive Start-Up-Rate (SUR) and raise power to the point-of-adding-heat (POAH) and continue power ascension.

EXPECTED ACTION/RESPONSE:

Once the operators had established reactor power above the POAH, the applicant was expected to understand that it rods would need to be maintained above the critical rod height to maintain a stable reactor power level of 2-3%, due to the effects of the power coefficient of reactivity and fission product poison concentration increasing with continued reactor operation.

APPLICANT ACTION/RESPONSE:

When the operators began the scenario, control rod bank 'D' were at 99/99 steps withdrawn, and the reactor was critical at a stable power level of approximately $2X10^{-3}$%. The applicant, as OATC, received direction from the Shift Supervisor (SS) to raise power to the POAH, and then maintain reactor power stable at approximately 2-3%. The applicant withdrew control rods until bank 'D' was at 108/107 steps to establish a stable positive Start-Up-Rate (SUR), and later declared that reactor power was at the POAH. When reactor power had been raised to approximately 1.5%, the applicant then recommended to the SS that rods be inserted to control bank 'D' at 99 steps to stabilize power. The SS did not agree with the applicant's recommendation, and instead gave direction to insert rods to achieve a 0 DPM SUR. The applicant inserted rods until control bank 'D' was at 104/103 steps withdrawn, and then withdrew rods again to stabilize power with control bank 'D' at 105/105 steps.

During post-scenario follow-up questioning, the examiner asked the applicant, why did you recommend moving rods back in to 'D' at 99 steps? The applicant stated: 99 steps was the critical rod height, and I wanted to stop the power increase. The examiner pointed out that the actual rod height when the applicant stabilized power was control bank 'D' at 105 steps, and asked the applicant, why was a higher rod height needed to stabilize power? The applicant thought for some time, but ultimately stated: I am not sure.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation (K/A G2.1.7); as well as a lack of ability to determine the effects on reactivity of plant changes, such as reactor coolant system temperature, secondary plant, fuel depletion, etc. (K/A G2.1.43). 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.