[redacted]

U.S. Nuclear Regulatory Commission Individual Examination Report					
Applicant's Name: [redacted]			Docket Number 55-23862		
I	R	Examination Type (Initial or Retake)	Facility Name: Vogtle		
		Reactor Operator	Facility Description	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: M. Meeks	RO/SRO/Total Exam Points 75 / 25 / 100
NRC Grader/Reviewer: M. Meeks	Applicant Points 68 / 23 / 91
Date Administered: April 20, 2012	Applicant Grade (%) 90.66 / 92.00 / 91.00

Operating Test Summary	
Administered by: M. Meeks	Date Administered: March 26– April 13, 2012
Walk-Through (Overall)	S
Administrative Topics	S
Simulator Operating Test	S

Examiner Recommendations					
Check Blocks	Pass	Fail	Waive	Signature	Date
Written Examination	X			M. Meeks	
Operating Test	X			M. Meeks	
Final Recommendation	X			M. Bates	

License Recommendation			
	Issue License		Date
	Deny License	Supervisor's Signature Malcolm T. Widmann	

[redacted]

[redacted]

Applicant Docket Number: 55-23862

Walk-Through Grading Details	Evaluation (S or U)	Comment Page Number
Administrative Topics		
a. Perform AFD Monitoring	S	
b. K_{eff} Determination for Shutdown Banks Withdrawn	S	
c. Determine Tagging Requirements	U	4
d. Determine if Task Can Be Completed Without Exceeding any Radiological Limits	S	
e. Emergency Plan Classification and Notification (Administered by P. Capehart)	S	
Systems: Control Room		
a. Control Rod Operability Test	S	
b. Transfer ECCS Pumps to Cold Leg Recirc	S	
c. Depressurize RCS to Reduce Break Flow to Ruptured SG (Administered by M. Bates)	S	
d. Start an RCP with Subsequent Seal Failure (Administered by M. Bates)	S	
e. Transfer AFW Suction Source to CST 2 (Administered by P. Capehart)	S	
f. Dilute Containment with Service Air	S	
g. Return ESF Bus from Diesel Generator to Normal Supply	S	
h. N/A	N/A	
Systems: In-Plant		
i. Establish RWST Gravity Drain Through RHR Pumps to HLs (Administered by M. Bates)	S	
j. Establish Local Control of 1E Switchgear (Administered by P. Capehart)	U	5
k. Placing the RHR 25kVA Inverter 1DD1I6 in Service (Administered by M. Bates)	S	

[redacted]

[redacted]

Applicant Docket Number: 55-23862

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	**2.10**	
c. Understanding	0.30	**1**	**0.30**		6,7
d. Diagnose	0.30	**2**	**0.60**		8
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**		9
3. Control Board Operations					
a. Locate & Manipulate	0.34	3	1.02		10
b. Understanding	0.33	**2**	**0.66**	**2.34**	11
c. Manual Control	0.33	**2**	**0.66**		
4. Communications					12
a. Clarity	0.40	**2**	**0.80**		
b. Crew & Others Informed	0.40	3	1.20	**2.40**	
c. Receive Information	0.20	**2**	**0.40**		13
5. Directing Operations					
a. Timely & Decisive Action	0.30	3	0.90		
b. Oversight	0.30	**2**	**0.60**	**2.70**	14
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	**2**	**0.80**		15
b. Compliance	0.60	3	1.80	**2.60**	

[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.]

[redacted]

CROSS REFERENCE:

Administrative Topic “c”

JPM/TASK:

Determine Tagging Requirements.

EXPECTED ACTION/RESPONSE:

Given the appropriate references, the applicant was expected to correctly determine the appropriate boundary points and required positions of components to (1) isolate the fluid boundary and (2) drain the “A” Containment Spray Pump (CSP), 1-1206-P6-001, in preparation for maintenance work on the pump seals. The applicant was expected to identify 1-1206-U4-108, CSP A Pump Casing Vent Valve, as a required vent path to be tagged in the UNFLANGE/OPEN or UNCAP/OPEN position. The other required vent path was via 1-1206-X4-108, CSP A Header Vent Valve, which was required to be tagged in the UNCAP/OPEN position. Proper tagging of both 1-1206-U4-108 and 1-1206-X4-108 were critical steps in the JPM, because both vents being open were required to completely drain the pump.

APPLICANT ACTION/RESPONSE:

When the applicant developed the tagout, the applicant incorrectly did not include 1-1206-U4-108 in any position on the tagout.

During post-JPM discussion with the examiner, the applicant incorrectly stated that 1-1206-X4-108 was the high point, and the only required vent path for the pump. The applicant did not correctly perform a critical step in the JPM. Therefore, the applicant was evaluated as not successfully completing the JPM.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of knowledge of tagging and clearance procedures.

CROSS REFERENCE:

Systems – In Plant JPM "j"

JPM/TASK:

Establish Local Control of 1E Switchgear

EXPECTED ACTION/RESPONSE:

The applicant was expected to perform steps 17 through 19 of AOP 18038-2, "Operation from Remote Shutdown Panels," Revision 32.1. At step 19, the applicant was expected to verify that no ACCW pump was running, and that no ACCW pump could be started. The applicant was then expected to proceed to the RNO column of step 19, stop all RCPs, and isolate letdown. Stopping RCPs and isolation of letdown were critical steps in the JPM.

APPLICANT ACTION/RESPONSE:

The applicant successfully completed steps 17 and 18 of the AOP. At step 19, the applicant attempted to start both ACCW Pump 1 and Pump 2 from its local test switch. Upon determining that the ACCW pumps could not be started, he requested guidance from the Shift Supervisor (SS). The examiner informed him that the SS requested that he follow the procedure guidance as given. The applicant then informed the examiner that he could not continue any further in the procedure because he could not start an ACCW pump. At this time, the applicant handed in his procedure, cue sheet, and informed the examiner that he was done with the JPM. The applicant failed to evaluate or perform the RNO column of step 19 when the left-hand step "Verify at least one ACCW Pump RUNNING" could not be completed. RNO steps 19.a and 19.b were critical steps in the JPM.

The applicant's performance was rated as unsatisfactory because he failed to complete all critical steps.

LACK OF ABILITY/KNOWLEDGE:

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

CROSS REFERENCE:

1.c: Interpretation/Diagnosis – Understanding

SCENARIO/EVENT:

Scenario 1, Event 1: Unblock Both Source Range High Flux At Shutdown (HFASA) Channels, Raise Reactor Power to beyond the Point-Of-Adding-Heat (POAH).

EXPECTED ACTION/RESPONSE:

The applicant, as Senior Reactor Operator (SRO), was expected to direct the Unit Operator (UO) to unblock both channels of source range HFASA. Once these channels had been unblocked, the applicant was expected to understand that receipt of the ALB10-C01 SOURCE RANGE HI FLUX LEVEL AT SHUTDOWN alarm was not an expected condition for continuing with the reactor power ascension.

APPLICANT ACTION/RESPONSE:

Approximately two minutes after directing the Reactor Operator (RO) to commence raising reactor power, the ALB10-C01 alarm annunciated. The applicant, as SRO, allowed the power ascension to continue and directed the UO to verify if the alarm was valid. Approximately six minutes after the alarm, the UO reported to the applicant that the alarm was a valid alarm. However, the applicant continued the power ascension. The POAH was reached approximately 11 minutes after the ALB10-C01 alarm annunciated.

During post-scenario follow-up questions, the applicant incorrectly stated that the ALB10-C01 alarm was expected for raising power, although he could have possibly reset the alarm [again] once reactor power had stabilized. 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.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of knowledge of annunciator alarms, indications, or response procedures.

CROSS REFERENCE:

1.c: Interpretation/Diagnosis – Understanding

SCENARIO/EVENT:

Scenario 7, Event 6: The Refueling Water Storage Tank (RWST) Developed a Leak With RWST Sludge Mixing Isolation Valves Failed to Automatically Close

EXPECTED ACTION/RESPONSE:

The applicant, as Senior Reactor Operator (SRO), was expected to understand that the RWST sludge mixing valves should automatically close on a RWST LO LEVEL alarm, and ensure that the operators verify that the expected automatic actions do, in fact, occur.

APPLICANT ACTION/RESPONSE:

When the RWST LO LEVEL alarm annunciated, the applicant directed the ARP to be referenced and actions taken. The applicant verified that RWST levels were actually lowering on all channels and dispatched non-licensed operators to the area to investigate the problem. However, the entire crew (including the applicant) allowed the RWST leak to continue for approximately 19 minutes before they isolated the leak by manually closing the RWST sludge mixing isolation valves (1-LT-0991 and 1-LT-0990) using handswitches on the control room back-panel QPCP.

During post-scenario follow-up questions, the applicant stated that he did not initially think to check the RWST valves closed as part of verifying the automatic actions of the RWST LO LEVEL alarm response 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.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of knowledge of annunciator alarms, indications, or response procedures; as well as a lack of ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup.

CROSS REFERENCE:

1.d: Interpretation/Diagnosis – Diagnosis

SCENARIO/EVENT:

Scenario 6, Event 4: Pressurizer (PRZR) Level Channel LT-459 Slowly Failed Low

EXPECTED ACTION/RESPONSE:

The applicant, as Reactor Operator (RO), was expected to correctly diagnose the LT-459 failure and make appropriate reports to the Senior Reactor Operator (SRO). Indications of the LT-459 failure included the LT-459 channel indication slowly lowering, the other two PRZR level channel indications slowly rising, charging flow FIC-0121 rising to maximum, annunciator ALB11-D01 PRZR LO LEVEL DEVIATION alarming, and PRZR pressure rising as actual pressurizer level compressed the PRZR bubble.

APPLICANT ACTION/RESPONSE:

When the PRZR LO LEVEL DEVIATION alarm annunciated, the applicant announced in a confident tone “pressurizer level is lowering,” and then stated in a questioning tone “pressure is rising?” Neither the applicant nor the SRO diagnosed the PRZR level channel failure, and after a long pause, the SRO began to order “perform immediate operator actions—“ when the Unit Operator (UO) cut off the SRO in mid-communication and loudly announced that there was a PRZR level instrument failure to the team.

During post-scenario follow-up questions, the applicant stated that he “…initially saw the IPC [computer screen indication] pressurizer level trend lowering and pressurizer pressure rising … I thought if it was a RCS leak, then pressurizer level and pressure would be going down the same way. [The UO] saw one channel failing.” 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.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to identify and interpret diverse indications to validate the response of another indication.

CROSS REFERENCE:

2.c: Procedures – Correct Use

SCENARIO/EVENT:

Scenario 7, Event 5: Pressurizer (PRZR) Pressure Channel PI-456 Failed High, PORV Block Valve HV-8000B Failed to Close in Automatic

EXPECTED ACTION/RESPONSE:

The applicant, as Senior Reactor Operator (SRO), was expected to correctly perform steps in procedure AOP 18001-C section C to mitigate the PRZR pressure channel failure. Specifically, while performing steps C8, C9, and C10, the applicant was expected to (C8) place PRZR heaters and PRZR spray valve controllers in AUTO, (C9) place PORVs in AUTO and verify proper operation, and then (C10) return the PRZR master pressure controller to AUTO.

APPLICANT ACTION/RESPONSE:

When the applicant performed step C8, he essentially skipped over steps C8.b. and c., which place the PRZR heaters in AUTO and then place PRZR spray valve controllers in AUTO. At step C9, which directs placing the PORVs in AUTO, the applicant stated that he would "maintain PORV-456 in the close position due to Tech Spec action." The applicant then did perform step C10, which returned the PRZR pressure master controller to AUTO. At this point the PRZR pressure control system was in a very abnormal lineup: although the master controller was in AUTO, the applicant had PRZR heaters in a manual configuration, PRZR spray valves in a manual configuration, and one PRZR PORV valve in a manual configuration.

During post-scenario follow-up questions, the applicant incorrectly stated that he could not perform step C9 because he was required by Tech Specs to keep the PORV in manual and closed. The applicant then stated he "…should have performed step C8 b. and c. before C10." 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.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to interpret and execute procedure steps.

CROSS REFERENCE:

3.b.: Control Board Operations – Understanding

SCENARIO/EVENT:

Scenario 6, Event 4: Pressurizer (PRZR) Level Channel LT-459 Slowly Failed Low

EXPECTED ACTION/RESPONSE:

The applicant, as Reactor Operator (RO), was expected to correctly understand the impacts of "saturation" on the PRZR level control system/charging flow controller when returning the charging flow controller (FIC-121) to automatic operation.

APPLICANT ACTION/RESPONSE:

The applicant placed FIC-121 to manual in accordance with AOP 18001-C in order to mitigate the PRZR level channel failure. The applicant was then directed by the Senior Reactor Operator (SRO) to return FIC-121 to automatic after approximately 18 minutes in manual. When the applicant agreed with the SRO and placed FIC-121 to auto, the valve -121 went fully closed, charging flow rapidly lowered, and the REGEN HX LTDN HI TEMP alarm came in. Without further guidance from the SRO, the applicant went back to manual on FIC-121 and re-opened the valve before letdown had to be isolated. The Unit Operator (UO) restored RCP seal injection flow rates while the applicant restored charging flow.

During post-scenario follow-up questions, the applicant incorrectly stated that he thought there was an issue with FIC-121. He further stated that when he returned FIC-121 to automatic "pressurizer level and program level were matched, but then demand on the controller went from sixty to seventy-five percent to twenty-five percent immediately, which drove charging and [RCP] seal flows down." 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.

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.

CROSS REFERENCE:

3.c.: Control Board Operations – Manual Control

SCENARIO/EVENT:

Scenario 6, Event 6: 'B' Main Feed Pump Turbine (MFPT) Experienced High Vibrations, Rapid Power Reduction Required

EXPECTED ACTION/RESPONSE:

If directed by the Senior Reactor Operator (SRO) to control average Reactor Coolant System (RCS) temperature (Tave) with control rods in manual, the applicant, as Reactor Operator (RO), was expected to correctly control Tave-to-reference temperature (Tref) approximately matched, and within procedurally directed bands. Procedure 18013-C, "Rapid Power Reduction," requires the operators to maintain Tave within 6 °F of Tref. It was expected that the applicant would maintain the Tave-to-Tref difference approximately matched, or slightly negative, during the rapid downpower.

APPLICANT ACTION/RESPONSE:

Although 18013-C directs the operators to maintain rods in automatic, the applicant was directed by the SRO to "place control rods in manual and insert up to 5 steps at a time." After the applicant placed rods to manual, he performed a 3 step rod insertion. At this time, Tave was approximately 2.0 °F colder than Tref, but the applicant was mis-reading the Tave-to-Tref difference as Tave being 2.0 °F hotter than Tref. Approximately one minute after the first rod insertion, the applicant performed a 5 step rod insertion, making the deviation worse. Tave continued to lower until it was approximately 5.2 °F colder than Tref. At this point, the applicant became concerned about pressurizer level lowering (due to the lowering Tave) and announced to the SRO that "we're at max charging and pressurizer level is 46%!" Several minutes later, the SRO ultimately determined that they had been mis-reading the Tave-to-Tref difference and gave direction to return rod control to automatic. After the applicant returned rods to automatic, the rod control system responded as designed during the remaining power reduction.

During post-scenario follow-up questions, the applicant stated that when the SRO "put Tave and Tref on the [computer] screen I thought we were greater than 1.5 degrees off, but what I actually did was [incorrectly calculate] absolute value. Driving rods in caused Tave to go the other way, once we took rods to auto the rods stepped in as required." 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.

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.

CROSS REFERENCE:

4.a.: Communications – Clarity

SCENARIO/EVENT:

Scenario 7, Event 5: Pressurizer (PRZR) Pressure Channel PI-456 Failed High, PORV Block Valve HV-8000B Failed to Close in Automatic

EXPECTED ACTION/RESPONSE:

The applicant, as Senior Reactor Operator (SRO), was expected to clearly state verbal direction to the control room operators, including using proper plant nomenclature.

APPLICANT ACTION/RESPONSE:

When PI-456 failed high, the Reactor Operator (RO) correctly closed the PRZR spray valves, but then incorrectly turned the PRZR PORV switch to the “OPEN” position (thinking that she was closing the valve). When the PORV did not go closed, and with PRZR pressure lowering rapidly, the RO turned to the SRO for guidance. At this point, the applicant stated “SHUT THAT VALVE!” without giving any further nomenclature or clarification as to which valve he wanted to be closed. The RO then closed the PORV.

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.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to make accurate, clear, and concise verbal reports.

CROSS REFERENCE:

4.c.: Communications – Receive Information

SCENARIO/EVENT:

Scenario 7, Event 7: MFRV #3 Failed Shut Requiring Reactor Trip, Three Stuck Rods

EXPECTED ACTION/RESPONSE:

The applicant, as Senior Reactor Operator (SRO), was expected to correctly receive verbal communications from the control board operators, and ensure appropriate corrections occurred when the communications from the control board operators were incorrect.

APPLICANT ACTION/RESPONSE:

After the manual reactor trip was initiated, the applicant directed the Reactor Operator (RO) to "check if SI is required," at step 4 RNO of 19000-C, "E-0 Reactor Trip or Safety Injection." The first bulleted substep of this RNO directs the operator to check "PRZR pressure less than or equal to 1870 psig." At this point, the RO checked Steam Generator pressures and reported to the applicant that "pressurizer pressures 1020 pounds and stable." Actual pressurizer pressure was 2228 psig at this time. The applicant failed to acknowledge the incorrect report from the RO, and failed to ensure the correct report was made. If actual PRZR pressure had been 1020 pounds, a Safety Injection should have been actuated.

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.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to receive accurate, clear, and concise verbal reports.

CROSS REFERENCE:

5.b: Directing Operations – Oversight

SCENARIO/EVENT:

Scenario 7, Event 1: Raise Power in accordance with 12004-C, Power Operation (Mode 1)

EXPECTED ACTION/RESPONSE:

The applicant, as Senior Reactor Operator (SRO), was expected to remain in a position of oversight in order to ensure the Reactor Operator (RO) made the required reactivity adjustments to maintain Tave within 2°F of Tref during a power ascension from 29%.

APPLICANT ACTION/RESPONSE:

Prior to commencing the power ascension, the applicant directed the RO to maintain Tave within 2°F of Tref. However, Tave lowered to approximately 2.3 °F below Tref after the power ascension was suspended. Tave trended downward for approximately 40 minutes before reaching the maximum deviation of 2.3 °F, at which time the RO withdrew control rods and restored Tave back within the directed control band. During this 40 minute period, the applicant did not notice that Tave was trending out of the directed band, and did not provide further guidance to the RO to correct the condition.

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.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to direct personnel activities in the control room.

CROSS REFERENCE:

6.a: Technical Specifications – Recognize and Locate

SCENARIO/EVENT:

Scenario 7, Event 5: Pressurizer (PRZR) Pressure Channel PI-456 Failed High, PORV Block Valve HV-8000B Failed to Close in Automatic

EXPECTED ACTION/RESPONSE:

The LCO bases of Technical Specification (TS) 3.4.11, "Pressurizer PORVs," states the following:

> The LCO requires the PORVs and their associated block valves to be OPERABLE for manual operation to mitigate the effects associated with an SGTR, or loss of heat sink, and to achieve safety grade cold shutdown. The PORVs are considered OPERABLE in either the manual or automatic mode. […] An OPERABLE PORV is required to be capable of manually opening and closing, and not experiencing excessive seat leakage. […] An OPERABLE block valve may be either open and energized, or closed and energized with the capability to be opened, since the required safety function is accomplished by manual operation.

In accordance with the above, the applicant, as Senior Reactor Operator (SRO), was expected to correctly recognize that LCO 3.4.11 was met following the PI-456 failure and failure of the PORV block valve HV-8000B to close. Because both the PORV and the block valve were capable of being cycled in manual operation, both valves remained OPERABLE.

APPLICANT ACTION/RESPONSE:

When the applicant performed step C9 of AOP 18001-C, which directs placing the PORVs in AUTO, the applicant stated that he would "maintain PORV-456 in the close position due to Tech Spec action."

During post-scenario follow-up questions, the applicant incorrectly stated that he could not perform step C9 because he was required by Tech Specs to keep the PORV in manual and closed. The applicant further stated that he "…was more comfortable calling it inoperable and having people look at it. To manually cycle the block valve would constitute troubleshooting." 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.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a lack of ability to determine operability and/or availability of safety related equipment.