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U.S. Nuclear Regulatory Commission Individual Examination Report					
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: M. Meeks	RO/SRO/Total Exam Points 75
NRC Grader/Reviewer: M. Meeks	Applicant Points 70
Date Administered: April 20, 2012	Applicant Grade (%) 93.33

Operating Test Summary	
Administered by: M. Bates	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			Michael Meeks M. Meeks	05/10/2012
Operating Test	X			Mark C. Tates M. Bates	10 MAY 2012
Final Recommendation	X			Michael Meeks M. Meeks	05/10/2012

License Recommendation			
✓	Issue License		Date
	Deny License	Supervisor's Signature Malcolm T. Widmann	05/10/12

Applicant Docket Number: [redacted]

Walk-Through Grading Details	Evaluation (S or U)	Comment Page Number
Administrative Topics		
a. Perform AFD Monitoring (Administered by M. Meeks)	S	
b. K_{eff} Determination for Shutdown Banks Withdrawn (Administered by M. Meeks)	S	
c. Determine Tagging Requirements (Administered by M. Meeks)	S*	4
d. Determine if Task Can Be Completed Without Exceeding any Radiological Limits (Administered by M. Meeks)	S	
e. N/A	N/A	
Systems: Control Room		
a. Control Rod Operability Test (Administered by M. Meeks)	S	
b. Transfer ECCS Pumps to Cold Leg Recirc (Administered by M. Meeks)	U	5
c. Depressurize RCS to Reduce Break Flow to Ruptured SG	S*	6
d. Start an RCP with Subsequent Seal Failure	S*	7
e. Transfer AFW Suction Source to CST 2	S	
f. Dilute Containment with Service Air (Administered by M. Meeks)	S	
g. Return ESF Bus from Diesel Generator to Normal Supply (Administered by M. Meeks)	S*	8
h. Manually Actuate CRI Due to Smoke (Administered by P. Capehart)	S*	9
Systems: In-Plant		
i. Establish RWST Gravity Drain Through RHR Pumps to HLs	S	
j. Establish Local Control of 1E Switchgear (Administered by P. Capehart)	S	
k. Placing the RHR 25kVA Inverter 1DD1I6 in Service	S*	10

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	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	**2**	**0.80**	**2.60**	11
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.]

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-U4-002, CSP A Suction Floor Drain Isolation, as a required drain path to be tagged in the OPEN position. Proper tagging of 1-1206-U4-002 was not a critical step in the JPM.

APPLICANT ACTION/RESPONSE:

When the applicant developed the tagout, the applicant incorrectly stated that 1-1206-U4-002 should be tagged in the CLOSED position.

During post-JPM discussion with the examiner, the applicant incorrectly stated that valve "-002" was an isolation boundary that was required to be tagged in a closed configuration. The applicant correctly performed all critical steps in the JPM; therefore, the applicant's performance was rated as satisfactory.

LACK OF ABILITY/KNOWLEDGE:

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

CROSS REFERENCE:

Systems: Control Room "b"

JPM/TASK:

Transfer ECCS Pumps to Cold Leg Recirculation.

EXPECTED ACTION/RESPONSE:

The applicant was directed to transfer ECCS pumps to cold leg recirculation using procedure 19013-C, "ES-1.3 Transfer to Cold Leg Recirculation." However, per the design of the JPM, "A" train RHR suction valve HV-8812A (RWST to RHR PMP-A Suction) failed to close, and "B" train RHR suction valve HV-8811B (CNMT Sump to RHR PMP-B Suction) failed to open. Based on this system configuration, alignment for cold leg recirculation was not possible, and a transition to procedure 19111-C, "ECA-1.1 Loss of Emergency Coolant Recirculation," was required at RNO step 3.e of Attachment A to 19013-C.

In accordance with 19013-C, Attachment A, it was a critical step to secure the "A" RHR pump when it was determined that HV-8812A would not close. It was a critical step in the JPM to secure the "B" RHR pump at step RNO 3.b._1) of Attachment A, and it was also a critical step in the JPM to not re-start the "B" RHR pump (which would not have a suction source) at step RNO 3.b._4). The applicant was expected to correctly follow procedural rules of usage and continue with step RNO 3.b._5), which directed the operator to perform step 3.d. The applicant was then expected to perform steps 3.d, 3.e, and ultimately RNO step 3.e, which directed the required transition to 19111-C. Determining that a transition to 19111-C was required was a critical step in the JPM.

APPLICANT ACTION/RESPONSE:

During the JPM, the applicant incorrectly read step 2.c of Attachment A, which states "Close RWST TO RHR PMP-A SUCTION HV-8812A," as "check OPEN HV-8812A." Because HV-8812A was open, the applicant did not secure the "A" RHR pump as required by a critical step. Although the applicant stopped the "B" RHR pump, he did not determine that a transition to 19111-C was required, which was a critical step. As the applicant continued with Attachment A, RWST Empty alarms were received, but the applicant did not correctly determine that these alarms were due to the abnormal alignment caused by his previous errors.

After the JPM, the examiner asked the applicant to go over the sequence of Attachment A, step 2. The applicant then recognized that he should have closed HV-8812A instead of checking the valve open and stated, "How did I miss that step?" When the examiner asked the applicant what line-up the "A" RHR system was in, the applicant stated correctly that he had left the "A" RHR pump taking a suction from both the RWST and the containment sumps, which was the reason he had received RWST level alarms. The applicant failed to correctly perform multiple critical steps; therefore, the applicant was evaluated as not successfully completing the JPM.

LACK OF ABILITY/KNOWLEDGE:

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

CROSS REFERENCE:

Systems – Control Room "c"

JPM/TASK:

Depressurize RCS to Reduce Break Flow to Ruptured SG

EXPECTED ACTION/RESPONSE:

The applicant was expected to correctly apply the procedural rules of usage when arming one available train of COPS in accordance with procedure 19030-C, "E-3 Steam Generator Tube Rupture," Revision 37.1, Step 34. Specifically, the applicant was expected to attempt to arm the first train of COPS, recognize that it failed to successfully arm, and then arm the second train of COPS, which was designed to properly arm. The applicant was not expected to proceed to the RNO column of the procedure after the first train of COPS failed to arm because the left hand column of the procedure could be successfully performed. The RNO column should not have been performed until arming of both trains of COPS had been attempted.

APPLICANT ACTION/RESPONSE:

The applicant attempted to arm the first train of COPS, recognized that the PORV Block Valve did not open, and then proceeded to the RNO column and attempted to manually open the PORV Block Valve. The applicant then went back to the left hand column of the same step and armed the second train of COPS and successfully completed the task. The applicant made a procedural usage error in that he should not have proceeded to the RNO column of Step 34 until after he had attempted to arm both trains of COPS.

The applicant's performance was rated as satisfactory because he successfully completed all critical steps.

LACK OF ABILITY/KNOWLEDGE:

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

CROSS REFERENCE:

Systems – Control Room "d"

JPM/TASK:

Start an RCP with subsequent Seal Failure

EXPECTED ACTION/RESPONSE:

The applicant was expected to complete step 4.1.2.10 of procedure 13003-1, "Reactor Coolant Pump Operation," Revision 45, which directed the operator to establish conditions for starting an RCP as described in Table 1, RCP Prestart Conditions.

APPLICANT ACTION/RESPONSE:

The applicant did not perform step 4.1.2.10 to verify establishment of RCP Prestart Conditions.

The applicant's performance was rated as satisfactory because RCP Prestart Conditions were already met; therefore, verification of these conditions was not a critical step.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in thoroughly performing a procedure step that required a verification of RCP Prestart Conditions.

CROSS REFERENCE:

Systems: Control Room "g"

JPM/TASK:

Returning ESF Bus from Diesel Generator to Normal Supply.

EXPECTED ACTION/RESPONSE:

The applicant was directed to parallel Reserve Auxiliary Transformer (RAT) "B" to bus 1BA03, and then remove DG 1B from bus 1BA03 in accordance with procedure 13427B-1, "4160V AC Bus 1BA03 1E Electrical Distribution System." At step 4.2.5.1 of this procedure, the applicant was expected to lower DG 1B load to 3000 kW in maximum increments of 1000 kW and 500 kVAR in time increments of 5 minutes. When the applicant reached step 4.2.5.1, the diesel would be running with ~3250 kW load and ~300 kVARs lagging. The next step (4.2.5.2) of the procedure directed the operator to concurrently unload the D/G to 700 kW and 200-300 kVARs lagging after the diesel load has been stable at 3000 kW for a 5 minute period. None of the above-mentioned steps in the procedure were critical steps in the JPM.

APPLICANT ACTION/RESPONSE:

During the JPM, when the applicant performed step 4.2.5.1 of the procedure to unload the diesel, he lowered load from ~3200 kW to ~2100 kW and then waited 5 minutes. This was incorrect because diesel load was lowered below ~3000 kW.

During post-JPM questions with the examiner, the examiner asked the applicant to go back through the procedural steps of 4.2.5.1 and 4.2.5.2. At this time, the applicant stated that he should have only lowered load to 3000 kW instead of 2100 kW, and that he realized the mistake when he turned the page and read step 4.2.5.2. However, the applicant correctly performed all critical steps in the JPM. Therefore, the applicant was evaluated as successfully completing the JPM.

LACK OF ABILITY/KNOWLEDGE:

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

CROSS REFERENCE:

Systems – Control Room "h"

JPM/TASK:

Manually Align CRI Due to Smoke Entering MCR Air Intakes

EXPECTED ACTION/RESPONSE:

The applicant was expected to manually actuate control room isolation per procedure 13301-C, "CBCR Normal HVAC and Emergency Filtration System." Specifically, at step 4.4.1.7, the applicant was expected to verify that the CR FILTER UNIT OUTLET AIR DMPR on the **running** train (Train B: 1-HV-12129) was open. The "B" Train was the only running train.

APPLICANT ACTION/RESPONSE:

The applicant incorrectly attempted to simulate opening **both** Train A and Train B outlet air dampers at this step. When asked, the applicant was provided a cue that Train A CR FILTER UNIT OUTLET AIR DMPR indicated closed. The applicant failed to properly identify the "B" train as the only **running** train.

The applicant's performance was rated as satisfactory because he successfully completed all critical steps.

LACK OF ABILITY/KNOWLEDGE:

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

CROSS REFERENCE:

Systems – In-Plant "k"

JPM/TASK:

Placing the RHR 25kVA Inverter 1DD1I6 in Service

EXPECTED ACTION/RESPONSE:

The applicant was expected to check proper inverter operation by observing 60 Hz on the inverter output frequency meter in accordance with procedure 13405-1, "125V DC 1E Electrical Distribution System," Rev 41.2, Step 4.1.11.2 (g).

APPLICANT ACTION/RESPONSE:

The applicant initially looked at AC Output Current (Amps) to verify inverter output frequency of 60 Hz. The applicant was provided the cue that the meters were reading as they were at that time (~38 amps). The applicant then continued to search for the correct indication and was able to correctly verify 60 Hz.

The applicant's performance was rated as satisfactory because he completed all critical steps correctly.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in his ability to locate the inverter output frequency meter.

CROSS REFERENCE:

2.b: Procedures/Tech Specs – Procedure Compliance

SCENARIO/EVENT:

Scenario 2, Event 2: Dropped Rod K-14 in Control Bank B and Resultant Power Reduction

EXPECTED ACTION/RESPONSE:

The applicant, as Reactor Operator (RO), was expected to challenge the Senior Reactor Operator (SRO) when the SRO directed him to insert control rods in 10 step increments during the power reduction which was required as a result of the dropped control rod. Procedure 18013-C, "Rapid Power Reduction," step 7 RNO states that manual rod control should be used to control Tave with insertions of up to 5 steps. Due to a previously scripted Tref failure, control rods were required to be in manual during the power reduction.

APPLICANT ACTION/RESPONSE:

The applicant was directed to insert control rods 10 steps on several occasions by the SRO. The applicant correctly carried out the actions and controlled Tave within procedural limits; however, 18013-C provides guidance to limit control rod insertion to 5 step increments. After the scenario, the applicant was asked to describe the 5 step rod insertion guidance. The applicant replied that the 5 step limit only applied to rod withdrawals. The applicant was downgraded on his procedure compliance knowledge because the 5 step limit explicitly applies to rod insertions as stated in 18013-C.

The applicant made one non-critical error in this rating factor; therefore, a score of "2" was assigned.

LACK OF ABILITY/KNOWLEDGE:

The applicant demonstrated a weakness in his procedure knowledge as it pertains to reactivity control on a power reduction.

Appendix D	Scenario Outline	Form ES-D-1

Facility: Vogtle Scenario No.: 1 Op-Test No.: 2012-301

Examiners: Michael Meeks
Phil Capehart
Mark Bates

Operators: [redacted] (SRO) W
[redacted] (OATC) G
[redacted] (CRO) H

Initial Conditions: The plant is at 2 X 10^{-3}% power, EOL, Reactor startup in progress.
(Base IC # 16, snapped to IC # 181 for HL17 NRC Exam)

Equipment OOS: None

Turnover: Raise power to ~ 1 to 3% and continue power ascension. Containment mini-purge is in service for a Containment entry on the next shift.

Preloaded Malfunctions:

ES08 - Train A SI auto actuation failure.

ES16 - Train B SI auto actuation failure.

RH04A - Block Auto Start on RHR Pump A

RH01B - RHR pump B trip (conditional trigger with SI + 60 seconds).

ES25A - Mini-Purge dampers 1HV-2628B fails to automatically close

ES25B - Mini-Purge dampers 1HV-2629B fails to automatically close

CC04E - CCW pump # 5 auto contact failure.

Overrides

HS-40008 SI switch to NORMAL (Panel Map, C Panel, click on HS, override to normal).

Note to Simulator Instructor – Place Containment Mini-Purge in service.

NOTE to Simulator Instructor-After IC reset, cycle N31 and N32 Shutdown monitors from OFF to ON, these are NOT on switch check.

NOTE to Simulator Instructor – Proper setup for N31/N32 for this scenario can be verified on Event # 1, page # 1.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R-OATC R-SS N-UO	Raise power from 2 X 10^{-3}% to beyond the POAH per 12003-C. Unblocks SR Channels N31/N32 HFASA circuits, adjusts AFW flows.
T2	RC10C @ 100%	I-OATC I-SS TS-SS	Narrow Range Tcold fails high causing FV-0121 to throttle open. **LCO 3.3.1, Condition A, FU 6, 7 Condition E and** **LCO 3.3.2, Condition A, FU 5b Condition I**

Event No.	Malf. No.	Event Type*	Event Description
T3	RM13122 @ 100%	I-NA TS-SS	Steam Generator # 3 Main Steam Line Radiation Monitor fails high **LCO 3.3.3, Condition A, FU 15 Condition F**
T4	MS03B @ 100%	C-UO C-SS	Steam Generator ARV Loop # 2 fails open.
T5	CC01A	C-UO C-SS TS-SS	CCW pump # 1 trips, standby pump fails to auto start. **INFO LCO 3.7.7**
T6	RP10A	C-OATC C-SS TS-SS	RCP # 1 High Vibration and manual RCP # 1 trip by operator. **LCO 3.4.4 Condition A**
T7	RC04A 0 to 25% with 60 second ramp	M-ALL	Small Break LOCA requires entry into 18004-C (~75 gpm) **LCO 3.4.13 Condition A** Ramp from 25% to 100% (~300 gpm over 20 seconds) when NRC chief examiner directs.
9	Preloaded	I-OATC I-SS **Critical**	**Auto SI fails to actuate, manual SI action from panel A2 required.**
10	Preloaded	C-OATC C-SS **Critical**	**RHR pump A fails to auto start and can be manually started. RHR pump B will trip shortly after SI actuates.**
11	Preloaded	C-UO C-SS **Critical**	**CNMT Mini-Purge Dampers fail to automatically close (HV-2628B and HV-2629B).**
T8	RC03A	M-ALL	Double-Ended pipe rupture at RCP discharge just after transition to E-1 prior to step 4 for RCP Trip Criteria.

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

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

Facility: Vogtle Scenario No.: 2 Op-Test No.: 2012-301

Examiners: Michael Meeks
Mark Bates
Phil Capehart

Operators: [redacted] (SRO) W
[redacted] (OATC) H
[redacted] (UO) G

Initial Conditions: The plant is at 100% power, MOL, steady state operations.
(Base IC # 14, snapped to IC # 182 for HL17 NRC Exam.)

Equipment OOS: Safety Injection Pump "A" is tagged out for motor repair.

Turnover: Maintain 100% power. Containment mini-purge is in service for a Containment entry on the next shift.

Preloaded Malfunctions:

GE12A - PCB 161710 Auto Trip Failure

GE12B - PCB 161810 Auto Trip Failure

SI06B – Block Auto Start on SI Pump B

Overrides

1HV-8801A BIT Discharge Valve – SHUT

1HV-8801B BIT Discharge Valve – SHUT

NOTE to Simbooth: Place Containment Mini-Purge in service.

Event No.	Malf. No.	Event Type*	Event Description
T1	TU19A @ 0%	I-OATC I-SS TS-SS	Main Turbine Impulse Pressure Transmitter – PT505 fails low. **LCO 3.3.1, Condition A, FU 16b, 16f Condition S (1 hour Tech Spec actions)**
T2	RD13D	R-OATC N-UO R-SS TS-SS	Dropped Rod K-14 in Control Bank B, reduces power to < 75 in 1 hour. **LCO 3.1.4 Condition B**
T3	FW02C @ 0%	C-UO C-SS	Controlling SG # 3 feed flow channel (FI-530A) fails low.
T4	NS02B NS04C	C-UO C-SS TS-SS	NSCW pump # 3 locked rotor, NSCW pump # 5 shaft shears on start. **LCO 3.7.8 Condition A, LCO 3.8.1 Condition B**
T5	CV07	C-OATC C-SS TS-SS	Normal Charging Pump (NCP) trips. **LCO TR 13.1.5 Condition A, LCO TR 13.1.3 Condition A**

6	N/A	N-OATC N-SS	Places CVCS Charging and Letdown in service.
T7	RC16 @ 0.6%	M-ALL	RCS Head LOCA (Small Break LOCA just large enough to reach RCP Trip Criteria over time).
		OATC UO **Critical**	Trips RCPs with RCS pressure < 1375 psig and ECCS flow present.
8	Preloaded	C-OATC C-SS **Critical**	SIP B auto start failure requiring manual start.
9	Preloaded	I-UO I-SS	Main Generator Output Breakers fail to automatically trip open.
Event No.	Malf. No.	Event Type*	Event Description

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

Event 1:

Main Turbine Impulse Pressure PT-505 fails low (Tref) resulting in inward rod motion.

Verifiable Actions:

OATC – Performs IOA of 18001-C, section H and places control rods in manual to stop uncontrolled inward rod motion.

OATC – Restores Tavg to program band to maintain Tavg and Tref matched.

UO – Verifies PIC-507 Steam Dump Control Pot at 7.28 (1092 psig) and in AUTO, then place Steam Dumps in the Steam Pressure Mode.

Technical Specifications:

LCO 3.3.1 Reactor Trip System (RTS) Instrumentation Condition A

LCO 3.3.1 Reactor Trip System (RTS) Instrumentation FU 16b, 16f Condition S.
(1 hour Tech Spec actions)