Facility: Braidwood											Exam Date: June 1 – 9, 2020	
Admin JPMs	1 ADMIN Topic and K/A	2 LOD (1-5)	3 Attributes							4 Job Content		5 U/E/S	6 Explanation
			I/C Focus	Cues	Critical Steps	Scope (N/B)	Overlap	Perf. Std.	Key	Minutia	Job Link		
SRO-S-103	Conduct of Operations 2.1.5	2		X					X			~~E~~ S	NRC: Based on initiating cue, the applicant would not need to refer to LS-AA-119 to determine if the Fire Brigade staffing will be met. The applicant will most likely only ask for and will only need BwAP 320-1 initially. They would not ask for LS-AA-119 until have the subsequent cue is given to determine based on the work schedule, which EO is eligible to fill in for the Fire Brigade. Why is the third page (page 7 of 8) of the shift schedule provided? It did not appear to provide any information needed to assess which EO was eligible for Fire Brigade duty. Response: Changed JPM to make both procedures referencing open bullet items and added to cue to hand copy of procedures "as requested". Agree with comments regarding third page of schedule. Removed from JPM. JPM is now SAT.
SRO-S-111	Conduct of Operations 2.1.43	2	X									~~E~~ S	NRC: I/C state that the applicant is an extra NSO. In the Initiating Cue, the US is requested to review and approve of the reactivity plan. The I/C should list the applicant as the US (especially for an SRO only Admin JPM). Response: Agree with comment, JPM Initiating Cues updated to read applicant is the Unit Supervisor. JPM is now SAT.
SRO-S-202	Equipment Control 2.2.23	2										S	NRC: None.
SRO-S-300	Radiation Control 2.3.6	2			X							~~U~~ S	NRC: The critical steps for this JPM are not adequately discriminatory. Having the two critical steps associated with identifying errors with the release package being effectively identical in nature is unsatisfactory. Recommend that the applicant identify a math error or data input error in step A.5.d as the first critical step. And then when properly

													calculated this would result in a different value being selected for the ALERT setpoint in step A.5.e.2) as the second critical step. Also, Initiating Cue should match the JPM Task Standard. Response: Changed sum in step A.5.d to a math error that is between the high and alert alarm setpoints as suggested by NRC. Also changed the high and alert alarm setpoints to align with the math error. Now the candidate must find the math error. Then, correct the high alarm setpoint. High alarm should be the baseline setpoint. Now, section C (instead of being identified as N/A) should have been performed as it was except the High alarm setpoint needs to be corrected. JPM is now SAT.
SRO-S-410	Emergency Procedures/Plan 2.4.38	3	X	X								E̶ S	NRC: Remove Initial Condition bullet 3. It is an unnecessary cue. With a loss or potential loss of all three fission product barriers in addition to the information provided by Initial Condition bullets 4 and 5 a gaseous release can be determined to be occurring. Perhaps provide EP-AA-114-F-01 as an available resource. What is the need for Initial Condition bullet 6? If the JPM is given in a classroom, the cue for wind direction and speed should be changed such that the applicant is asked how they would obtain the data and if a correct response is provided, the examiner can provide them a screen capture of the met data. **TIME CRITICAL** Response: Bullet 3 and 6 removed JPM will be updated to include screen shot of wind speed and direction for NARS form completion. JPM is now SAT.
RO-R-102	Conduct of Operations 2.1.7	3										S	NRC: None.
RO-R-113	Conduct of Operations 2.1.19	2										S	NRC: None.

				X											
RO-R-204	Equipment Control 2.2.41	2		X										E S	NRC: Cue prior to establishing alternate isolation should require the applicant to identify a subsequent isolation which minimizes impact on additional equipment. Response: Cue updated to determine isolation point minimizing impact on additional equipment. Added P&ID Sheets in case requested (2G,8). JPM is now SAT.
RO-R-406	Emergency Procedures/Plan 2.4.43	3												S	NRC: None. **TIME CRITICAL**

Simulator/In-Plant JPMs	Safety Function and K/A	LOD (1-5)	I/C	Cues	Critical Steps	Scope	Overlap	Perf. Std.	Key	Minutia	Job Link	U/E/S	Explanation
a SIM-101	1 024 AA1.17	2										S	NRC: None NOTE: Eliminated Steps 9 & 10 as non-essential. JPM is SAT.
b SIM-224	2 013 A4.01	3										S	NRC: None.
c SIM-410P	4P 005 A4.01	3										S	NRC: None.
d SIM-402Sa	4S 005 A4.01	3						X				E̶ S	NRC: The performance standard for JPM Step 3 associated with BwOP FW-1, Step F.5.c.1) does not include an action to direct a local operator to depress the RESET push button. Response: The local reset is an open bullet. For this JPM, the expectation is that the candidate would use the Ovation Work Station to reset from the MCR. Added cue that local latch pushbutton is not working. JPM is now SAT.
e SIM-512	5 022 A4.02	3										S	NRC: None.
f SIM-600	6 064 A4.07	2			X							U̶ S	NRC: JPM step 2 associated with procedure step 7.1 should be a critical step as it accomplishes part of the task standard of unloading the diesel. Why isn't JPM step 6 associated with procedure step 7.6 to remove the diesel's reactive loading critical? Consider a time compression cue be provided for the 15-minute wait at 1400kw, during JPM Step 5. Will having no breaker closing time information filled out on the DG-11T1 or loading time info recorded in the BwOSR procedure at step 5.2 be confusing for the applicant? Response: JPM Step 2 has been designated as a critical step, but since the auto voltage regulator will adjust reactive load there is no required action for Step 6. Time compression cue is provided at JPM Step 2.

														Students will be provided a partially filled out DG-11T1 with breaker close times and loading times filled in as appropriate. JPM is now SAT.
g SIM-702	7 015 A1.01	3											S	NRC: None. NOTE: Added an Examiner Note prior to step 2 for Points Deleted From Processing associated with a future AVR plant modification.
h SIM-801	8 008 A4.01	2											S	NRC: None.
i IP-206	2 013 A4.02	2								X			E̶ S	NRC: The applicant may not check the computer alarm summary to note that the B train of Phase A reset in JPM Step 2, and as a result will install jumpers in the 2PA10J. Since we are in possession of the key for this cabinet the author must have assumed this is a possible outcome. I would not fail an applicant for doing this, but it is perhaps worthy of a comment. Since this is a reasonable path the applicants may take, the steps that would be performed to locally reset train B should be included in the JPM with the note that they may be performed if the applicant does not assess that pressing the train B reset button in the control room was successful. Response: A note exists prior to step 3 that says the trainee may conservatively reset both trains of Phase A locally. Added optional steps to JPM for train B local reset. JPM is now SAT.
j IP-400S	4S E05 EA1.1	2											S	NRC: None.
k IP-601	6 058 AA1.03	2											S	NRC: None.

Instructions for Completing This Table:

Check or mark any item(s) requiring a comment and explain the issue in the space provided using the guide below.

1. Check each JPM for appropriate administrative topic requirements (COO, EC, Rad, and EP) or safety function requirements and corresponding K/A. Mark in column 1. (ES-301, D.3 and D.4)

2. Determine the level of difficulty (LOD) using an established 1–5 rating scale. Levels 1 and 5 represent an inappropriate (low or high) discriminatory level for the license that is being tested. Mark in column 2 (Appendix D, C.1.f)

3. In column 3, "Attributes," check the appropriate box when an attribute is **not met**:
   - The initial conditions and/or initiating cue is clear to ensure the operator understands the task and how to begin. (Appendix C, B.4)
   - The JPM contains appropriate cues that clearly indicate when they should be provided to the examinee. Cues are objective and not leading. (Appendix C, D.1)
   - All critical steps (elements) are properly identified.
   - The scope of the task is not too narrow (N) or too broad (B).
   - Excessive overlap does not occur with other parts of the operating test or written examination. (ES-301, D.1.a, and ES-301, D.2.a)
   - The task performance standard clearly describes the expected outcome (i.e., end state). Each performance step identifies a standard for successful completion of the step.
   - A valid marked up key was provided (e.g., graph interpretation, initialed steps for handouts).

4. For column 4, "Job Content," check the appropriate box if the job content flaw **does not meet** the following elements:
   - Topics are linked to the job content (e.g., not a disguised task, task required in real job).
   - The JPM has meaningful performance requirements that will provide a legitimate basis for evaluating the applicant's understanding and ability to safely operate the plant. (ES-301, D.2.c)

5. Based on the reviewer's judgment, is the JPM as written (U)nacceptable (requiring repair or replacement), in need of (E)nhancement, or (S)atisfactory? Mark the answer in column 5.

6. In column 6, provide a brief description of any (U)nacceptable or (E)nhancement rating from column 5.

Save initial review comments and detail subsequent comment resolution so that each exam-bound JPM is marked by a (S)atisfactory resolution on this form.

Facility: Braidwood					Scenario: 1 (100% PWR)				Exam Date: June 1 – 9, 2020
1 Event	2 Realism / Cred.	3 Required Actions	4 Verifiable actions	5 LOD	6 TS	7 CTs	8 Scenario Overlap	9 U/E/S	10 Explanation
1 Swap WS Pumps								S	
2 VCT(1LT-112) Level Fails Hi								S	
3 1A CV Pump Trip					X			S	
4 TGV (#4) Fails Closed (Rods in MAN)								S	
5 Loop 1A T$_{avg}$ Fails Hi					X			S	
6 Mn Gen H2 Temp Controller Setpoint Fails Hi								S	1) 2018 ILE Spare Scenario; Not used.
7 SGTR & Feedline Break on 1D SG						X		S	
8 Auto MSLI (both trains) Fails								S	
9 Train B CV/SI Valves Fail to auto reposition (1SI8801A) Fails Closed						X		S	
8	0	0	0		2	2	9	S	

Facility: Braidwood						Scenario: 2 (53% PWR)			Exam Date: June 1 – 9, 2020
1 Event	2 Realism/ Cred.	3 Required Actions	4 Verifiable actions	5 LOD	6 TS	7 CTs	8 Scenario Overlap	9 U/E/S	10 Explanation
1 Lower Reactive Load								S	
2 RWST Level (1LT-933) Fails Hi					X		X	S	1) 2018 ILE Scenario 3, Event 4.
3 Letdown HX Temp Controller Setpoint Fails Hi								S	
4 Uncontrolled Rod Withdrawal							X	S	1) 2019 ILE Spare Scenario; Spare was used.
5 PRNI Channel N-42 Fails Low					X			S	
6 Ramp Unit to 1120MWe with Rods in MAN							X	S	1) 2018 ILE Scenario 2, Event 1.
7 Main Gen Voltage Reg Failure						X??		~~E~~ S	<u>NRC</u>: How does this CT meet the Required Criteria? (Why is this Safety Significant/Danger to the Public? Does the auto Rx Trip fail and that makes this Significant?) <u>Response</u>: If the crew fails to take prompt action to lower exciter field current, a Main Generator and Turbine trip will occur leading to a reactor trip. This meets the criteria in NUREG 1021 appendix D for preventing inappropriate actions that create a challenge to plant safety (such as an unintentional reactor protection system (RPS) or ESF actuation). Inaction by the crew may create an emergent CT (RPS actuation) which will be assessed per NUREG 1021. Therefore, this is not being considered a pre-identified CT. Event is now SAT.
8 Large Break RCS LOCA						X		S	1) 2018 ILE Spare Scenario; Not used.

9 1A RH Pump Trip		X̶	X̶					U̶ S	1) 2018 ILE Spare Scenario; Not used. NRC: There are not any required or verifiable actions directly associated with this event. The actions are associated with the next event involving CS pumps. This does not count as a component failure for the BOP/SRO. Recommend combine with preceding event. Response: Agree with NRC comment, removed the event type from D-1 cover sheet. Merged with Event 8 and verified that an adequate number of I/C events remain for each crew on forms ES-301-5. Event is now SAT.
10 1A CS Pump Trip w/1B Fail to Start						X		S	1) 2018 ILE Spare Scenario; Not used.
10	**0**	**1**	**1**		**2**	**2**	**7**	E̶ S	Scenario is now SAT.

Facility: Braidwood						Scenario: 3 (75% PWR)			Exam Date: June 1 – 9, 2020
1	2	3	4	5	6	7	8	9	10
Event	Realism/ Cred.	Required Actions	Verifiable actions	LOD	TS	CTs	Scenario Overlap	U/E/S	Explanation
1 Swap 75 gpm Letdown orifices								S	
2 1A CC Pump Trip w/1B Fail to Start					X			S	NRC: Very simple operator actions to merely start the standby pump that did not auto start. Response:
3 RCP 1A Standpipe PW Supply Valve Fails Open								S	
4 1A HD Pump Trip w/1B Pump Tripped						X		S	1) 2018 ILE Scenario 3, Event 5.
5 PZR PORV 1RY 456 Inadvertent Opening					X	X??		~~E~~ S	NRC: How does this CT meet the Required Criteria? (Why is this Safety Significant/Danger to the Public? Does the auto Rx Trip fail and that makes this Significant?) Response: If the crew fails to take prompt action to close the PZR PORV 1RY456 (or close the Block valve 1RY8000B) a low PRZ pressure condition could develop that would require a reactor trip. This meets the criteria in NUREG 1021 appendix D for preventing inappropriate actions that create a challenge to plant safety (such as an unintentional reactor protection system (RPS) or ESF actuation). Inaction by the crew may create an emergent CT (RPS actuation) which will be assessed per NUREG 1021. Therefore, this is not being considered a pre-identified CT. Event is now SAT.
6 1C RCP Trips/ATWS					X	X		S	1) 2018 ILE Scenario 1, Event 8 (ATWS).
7 Auto Rad Speed Fails at 8 steps/min						X		S	1) 2018 ILE Scenario 1, Event 9.
8 1C SG Steam Break Inside Cont.					X			S	
8	0	0	0		2	2	5	~~E~~ S	Scenario is now SAT.

Facility: Braidwood							Scenario: 4 (90% PWR)		Exam Date: June 1 – 9, 2020
1	2	3	4	5	6	7	8	9	10
Event	Realism/ Cred.	Required Actions	Verifiable actions	LOD	TS	CTs	Scenario Overlap	U/E/S	Explanation
1 Perform 1C TDFW Pump PMT									
2 Letdown Line Press Controller Setpoint Fails Hi							X		1) 2018 ILE Scenario 2, Event 2.
3 1A Letdown HX Tube Leak					X				
4 1C FW Pump Trip w/1A Fail to Start						~~X??~~		~~E~~ S	1) 2018 ILE Spare Scenario; Not used. NRC: How does this CT meet the Required Criteria? (Why is this Safety Significant/Danger to the Public? Does the auto Rx Trip fail and that makes this Significant?) Response: If the crew fails to take prompt action to start the 1A MFP, a low SGWL condition could develop that would require a reactor trip. This meets the criteria in NUREG 1021 appendix D for preventing inappropriate actions that create a challenge to plant safety (such as an unintentional reactor protection system (RPS) or ESF actuation). Inaction by the crew may create an emergent CT (RPS actuation) which will be assessed per NUREG 1021. Therefore, this is not being considered a pre-identified CT. Event is now SAT.
5 Adv Nuc Disp (AND) Load Reduction by 200MWe								~~E~~ S	NRC: ***NOTE:*** Recommend swapping events 4 & 5 to preclude applicants taking the unit off-line prior to performing the Reactivity Manipulation event. Response: Agree, with comment. Events swapped in drill guide. Event is now SAT.
6 Loop 1D WR T$_{hot}$ Fails Low					X				
7 PZR Vapor Space LOCA						X	X		1) 2018 ILE Scenario 1, Event 11.
8 1A CV Pump Trip on SI w/ 1B Fail to Start						X			
8	0	0	0	0	2	2	6	~~E~~ S	Scenario is now SAT.

Instructions for Completing This Table:

Use this table for each scenario for evaluation.

2   Check this box if the events are not related (e.g., seismic event followed by a pipe rupture) **OR** if the events do not obey the laws of physics and thermodynamics.

3, 4   In columns 3 and 4, check the box if there is **no** verifiable or required action, as applicable. Examples of required actions are as follows: (ES-301, D.5f)

- opening, closing, and throttling valves
- starting and stopping equipment
- raising and lowering level, flow, and pressure
- making decisions and giving directions
- acknowledging or verifying key alarms and automatic actions (Uncomplicated events that require no operator action beyond this should **not** be included on the operating test unless they are necessary to set the stage for subsequent events. (Appendix D, B.3))

5   Check this box if the level of difficulty is **not** appropriate.

6   Check this box if the event has a TS.

7   Check this box if the event has a critical task (CT). If the same CT covers more than one event, check the event where the CT started **only.**

8   Check this box if the event overlaps with another event on any of the last two NRC examinations. (Appendix D, C.1.f)

9   Based on the reviewer's judgment, is the event as written (U)nacceptable (requiring repair or replacement), in need of (E)nhancement, or (S)atisfactory? Mark the answer in column 9.

10   Record any explanations of the events here.

In the shaded boxes, sum the number of check marks in each column.

- In column 1, sum the number of events.
- In columns 2–4, record the total number of check marks for each column.
- In column 5, based on the reviewer's judgement, place a checkmark only if the scenario's LOD is not appropriate.
- In column 6, TS are required to be ≥ 2 for each scenario. (ES-301, D.5.d)
- In column 7, pre-identified CTs should be ≥ 2 for each scenario. (Appendix D; ES-301, D.5.d; ES-301-4)
- In column 8, record the number of events not used on the two previous NRC initial licensing exams. A scenario is considered unsatisfactory if there is < 2 new events. (ES-301, D.5.b; Appendix D, C.1.f)
- In column 9, record whether the scenario as written (U)nacceptable, in need of (E)nhancement, or (S)atisfactory from column 11 of the simulator scenario table.

Facility: Braidwood   **Exam Date: June 1 – 9, 2020**

	1	2	3	4	5	6	7	8	11
Scenario	Event Totals	Events Unsat.	TS Total	TS Unsat.	CT Total	CT Unsat.	% Unsat. Scenario Elements	U/E/S	Explanation
1	8	0	2	0	2	0	0.0	S	None.
2	10	1	2	0	2	0	10.0	E	One listed Event may not count as a Component Failure- No actions required. One identified CT does not meet the required Criteria. Event not counted. Potential Emergent CT considered an enhancement.
3	8	0	2	0	2	0	0.0	E	One identified CT does not meet the required Criteria. Potential Emergent CT considered an enhancement.
4	8	0	2	0	2	0	0.0	E	One identified CT does not meet the required Criteria. Potential Emergent CT considered an enhancement.

Instructions for Completing This Table:

Check or mark any item(s) requiring comment and explain the issue in the space provided.

1, 3, 5   For each simulator scenario, enter the **total** number of events (column 1), TS entries/actions (column 3), and CTs (column 5).

         This number should match the respective scenario from the event-based scenario tables (the sum from columns 1, 6, and 7, respectively).

2, 4, 6   For each simulator scenario, evaluate each event, TS, and CT as (S)atisfactory, (E)nhance, or (U)nsatisfactory based on the following criteria:

        a.   <u>Events</u>. Each event is described on a Form ES-D-2, including all switch manipulations, pertinent alarms, and verifiable actions. Event actions are balanced between at-the-controls and balance-of-plant applicants during the scenario. All event-related attributes on Form ES-301-4 are met. Enter the total number of unsatisfactory events in column 2.

        b.   <u>TS</u>. A scenario includes at least two TS entries/actions across at least two different events. TS entries and actions are detailed on Form ES-D-2. Enter the total number of unsatisfactory TS entries/actions in column 4. (ES-301, D.5d)

        c.   <u>CT</u>. Check that a scenario includes at least two pre-identified CTs. This criterion is a target quantitative attribute, not an absolute minimum requirement. Check that each CT is explicitly bounded on Form ES-D-2 with measurable performance standards (see Appendix D). Enter the total number of unsatisfactory CTs in column 6.

7   In column 7, calculate the percentage of unsatisfactory scenario elements: $\left(\dfrac{\overline{2+4+6}}{1+3+5}\right)100\%$

8   If the value in column 7 is > 20%, mark the scenario as (U)nsatisfactory in column 8. If column 7 is ≤ 20%, annotate with (E)nhancement or (S)atisfactory.

9   In column 11, explain each unsatisfactory event, TS, and CT. Editorial comments can also be added here.

Save initial review comments and detail subsequent comment resolution so that each exam-bound scenario is marked by a (S)atisfactory resolution on this form.

Facility: **Braidwood**					Exam Date: **June 1 – 9, 2020**

OPERATING TEST TOTALS						
	Total	Total Unsat.	Total Edits	Total Sat.	% Unsat.	Explanation
Admin. JPMs	9	1	4	4		Essentially identical steps/errors identified as the Critical steps, therefore the identified Critical Steps are insufficient to provide discriminating value.
Sim/In-Plant JPMs	11	1	2	8		All JPM steps required to successfully complete the JPM Task Standard should be identified as Critical Steps.
Scenarios	4	0	3	1		CTs in 3 scenarios considered to be potential emergent CTs and were evaluated as edit/enhancements.
Op. Test Totals:	24	2	8	13	8.3	

Instructions for Completing This Table:

Update data for this table from quality reviews and totals in the previous tables and then calculate the percentage of total items that are unsatisfactory and give an explanation in the space provided.

1.   Enter the total number of items submitted for the operating test in the "Total" column. For example, if nine administrative JPMs were submitted, enter "9" in the "Total" items column for administrative JPMs. For scenarios, enter the total number of simulator scenarios.

2.   Enter the total number of (U)nsatisfactory JPMs and scenarios from the two JPMs column 5 and simulator scenarios column 8 in the previous tables. Provide an explanation in the space provided.

3.   Enter totals for (E)nhancements needed and (S)atisfactory JPMs and scenarios from the previous tables. This task is for tracking only.

4.   Total each column and enter the amounts in the "Op. Test Totals" row.

5.   Calculate the percentage of the operating test that is (U)nsatisfactory (Op. Test Total Unsat.)/(Op. Test Total) and place this value in the bolded "% Unsat." cell.

        Refer to ES-501, E.3.a, to rate the overall operating test as follows:
- satisfactory, if the "Op. Test Total" "% Unsat." is ≤ 20%
- unsatisfactory, if "Op. Test Total" "% Unsat." is > 20%

6.   Update this table and the tables above with post-exam changes if the "as-administered" operating test required content changes, including the following:
- The JPM performance standards were incorrect.
- The administrative JPM tasks/keys were incorrect.
- CTs were incorrect in the scenarios (not including post scenario critical tasks defined in Appendix D).
- The EOP strategy was incorrect in a scenario(s).
- TS entries/actions were determined to be incorrect in a scenario(s).