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Operating Test Outline Review Comments

JPM Outline Comments		
1.	**NRC:**	(SRO Admin / Radiation Control) – Describe how "Verify Appropriate LCO Action for Inoperable Radiation Monitors per Technical Specifications and ODCM" is a K/A match to "use RMSs, such as fixed radiation monitors and alarms or personnel monitoring equipment". Specifically, the KA tasks the applicant to demonstrate the ability to use radiation monitoring systems. This JPM appears to test the applicant's ability to apply TS and/or ODCM requirements for radiation monitoring systems.
	Facility:	Actions Taken: Outline was revised to replace with the JPM titled "Review and Authorize a Waste Gas Release Permit" tied to KA 2.3.6, Ability to approve liquid or gaseous release permits.
2.	**NRC:**	(Control Room Systems / JPM c) – Since the JPM was used within the last 2 NRC exams, and assuming it was NOT modified, it is considered Direct (from the bank) and should be annotated with a "D". (RO and SRO-U ONLY … SRO-I outline was correct.)
	Facility:	Actions Taken: Outline for RO and SRO-U were revised to designate the JPM as P-D-S.
3.	**NRC:**	(Control Room Systems / JPM f) – Both "D" and "M" are shown. The JPM can only be EITHER "D" or "M".
	Facility:	Actions Taken: Outline was revised to designate the JPM as M; it is a significantly modified JPM.
4.	**NRC:**	(Control Room Systems / JPM f) – IF the JPM is NOT considered "significantly modified" (per the guidance in NUREG-1021, Rev. 12), THEN, contrary to the instructions on Form 3.2-2, there is not at least 1 alternate path JPM which is new or significantly modified.
	Facility:	The JPM is a significantly modified JPM.
5.	**NRC:**	(Control Room Systems / JPM f) – IF the JPM is NOT considered "significantly modified" (per the guidance in NUREG-1021, Rev. 12), THEN, contrary to the instructions on Form 3.2-2, there is not at least 1 SRO-U JPM which is new or significantly modified.
	Facility:	This is a repeat of comment 4.
6.	**NRC:**	(In-Plant Systems / JPM k) – Since the JPM was used within the last 2 NRC exams, and assuming it was NOT modified, it is considered Direct (from the bank) and should be annotated with a "D". (RO and SRO-U ONLY … SRO-I outline was correct.)

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JPM Outline Comments		
	Facility:	Actions Taken: Outline for RO and SRO-U were revised to designate the JPM as P-D.
7.	**NRC:**	(In-Plant Systems / JPM k) – Potential typo for the Safety Function designation. "Verify Control Room Pressurization Alignment Using OHP-4021-028-014, Attachment 1" is likely associated with system "050 Control Room Ventilation" which falls under Safety Function 9. IF this IS NOT Safety Function 9, THEN contrary to the instructions on Form 3.2-2, the 5 SRO-U JPMs must be related to 5 different Safety Functions.
	Facility:	Actions Taken: Outline for RO, SRO-I, and SRO-U were revised to designate the JPM as related to safety function 9

Simulator Scenario Outline Comments		
1.	**NRC:**	(Generic Scenario Comment) – Include the expected Technical Specification entries (e.g., T.S. 3.8.1, Condition B, Action B.1 and B.2) in the Event Description Details.
	Facility:	Actions Taken: Outlines have been modified to include Technical Specification entries in Event Description Details.
2.	**NRC:**	(Scenario NRC2022-1) – Currently only includes 1 event (Event 2) for Technical Specification (T.S.) evaluation. This is acceptable if each SRO candidate performing SRO duties during this scenario performs an N+1 scenario in the SRO role AND subsequently gets a 2nd T.S. evaluation (a MINIMUM of 2 T.S. evaluations are required for each SRO applicant per Table 3.4-2, "Events and Evolutions for License Level", ES-3.4, page 5 of 10). Presently, this is the case, but if the class configuration changes this may become a challenge.
	Facility:	Actions Taken: Added an event to the scenario involving a non-controlling instrument channel failure which will require an additional Technical Specification evaluation.
3.	**NRC:**	(Scenario NRC2022-1 / Event #4) – Event #4 indicates that the ATC operator will control VCT pressure in manual. Please explain why this is needed. The event summary for Event 1 indicates that the ATC will control VCT Level in manual during that event.

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Simulator Scenario Outline Comments		
	Facility:	In Event 1, 2-OHP-4022-IFR-001 requires the Crew to establish manual VCT Level and Pressure control bands. This is necessary because automatic makeup was disabled by placing the Reactor Coolant Blend Control switch in STOP. No action by the RO will be required until event 4 to manually control VCT level. In event 4, when a normal boration of 20 gallons per minute is initiated, VCT level and pressure will rise. The RO will be required manually control VCT level directly by diverting letdown flow. This action will control VCT pressure indirectly. Actions Taken: The outline has been modified to clarify this response.
4.	**NRC:**	(Scenario NRC2022-1 / Critical Task #1) – Please provide additional detail about how/why "under the postulated plant conditions, failure to manually start an RHR pump (when it is possible to do so) is a 'violation of the facility license condition'".
	Facility:	The acceptable results obtained in the FSAR analysis of a large-break LOCA are predicated on the assumption of minimum ECCS pumped injection. The analysis assumes that a minimum pumped ECCS flow rate, which varies with RCS pressure, is injected into the core. The flow rate values assumed for minimum pumped injection are based on operation of one each of the following ECCS pumps: high-head pump (CCP), intermediate-head pump (SI Pump), and low-head pump (RHR Pump). Operation of this minimum required complement of ECCS injection pumps is consistent with the FSAR assumption that only minimum safeguards are actuated. If the assumed single active failure was one RHR pump, starting an RHR pump would be required to establish minimum assumed ECCS flow. Failure to perform the critical task means that the plant is needlessly left in an unanalyzed condition. Performance of the critical task would return the plant to a condition for which analysis shows acceptable results. Because compliance with the assumptions of the FSAR is part of the facility license condition, failure to perform the critical task (under the postulated plant conditions) constitutes a violation of the license condition. Actions Taken: Clarification added to the scenario outline.
5.	**NRC:**	(Scenario NRC2022-1 / Critical Task #2) – Please provide additional bounding criteria for "transfer to cold leg recirculation". Typically, we have seen this bounded by a low RWST level value that procedurally requires securing ECCS pumps.

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Simulator Scenario Outline Comments		
	Facility:	The procedural limit requirement for stopping RHR/CTS pumps with suction aligned to the RWST is 11%. Stopping the pumps when this level is reached does not necessarily result in failure of the critical task, as the pumps would still be available to restart once the suction source has been aligned to the containment sump. At RWST level of ~9.1%, the RHR pumps will automatically trip to protect the pump from low suction flow. In order to successfully transfer to recirculation without interrupting ECCS flow to the core, at least SI and Charging Pump must remain in operation. Loss of RWST level would eventually result in cavitation of these pumps and resultant loss of flow. If CTS pumps cavitate, they might be unavailable for recirculation operation. Actions Taken: Revised performance standard of NRC2022-1 CT2 to include an additional bounding criteria for indications of cavitation/loss of flow from SI, CTS, or Charging Pumps. Clarification added to the scenario outline.
6.	**NRC:**	(Scenario NRC2022-1 / Critical Task #2) – Please provide additional detail about how "failure to complete actions within the specified time of Operator Time Critical Action E01 represents a challenge to plant safety."
	Facility:	The requirement to re-start the RHR and CTS pumps within 5 minutes of stopping the last pump to transfer to recirculation mode is contained in plant procedure 12-EHP-4075-TCA-001. From that procedure, "This procedure provides a reference document for Time Critical Actions. These are actions, or a series of actions, that must be completed within a specified time to ensure compliance with safety analyses, or other licensing basis assumptions." The specific safety analyses related to this requirement are the Post LOCA Long Term Cooling and Subcriticality Analysis, Long Term Post LOCA Containment Analysis, LOCA Radiological Consequences analysis, and Containment Sump Level analysis. Failure to operate within the five minute time limit places the plant outside an analyzed condition, which represents a challenge to plant safety. Actions Taken: Clarification added to the scenario outline.
7.	**NRC:**	(Scenario NRC2022-2 / Critical Task #1) – Please provide additional detail related to the UFSAR, about how DNB "could" occur if the reactor is not tripped "promptly" and how "within one minute" is "promptly" enough to prevent DNB. Why is "within one minute" the right amount of time and what documentation makes it defendable as the bounding time for the Critical Task? … Is the "one minute" written into the UFSAR? … is there an engineering/Westinghouse evaluation stating why within one minute is the proper bounding time criteria?

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Simulator Scenario Outline Comments		
	Facility:	From the Cook Plant UFSAR, Chapter 14: "If the reactor is at full power at the time of the accident, the immediate effect of a loss of coolant flow is a rapid increase in coolant temperature which is magnified by a positive MTC. This increase could result in DNB with subsequent adverse effects to the fuel if the reactor were not tripped promptly." The Cook Plant UFSAR does not give a specific time requirement, only that the reactor should be "tripped promptly". The analysis assumes success of the automatic reactor trip for low RCS flow. Since there is no specific time listed in the analysis, or any other means to establish a preferred boundary condition, a time of one minute was chosen as an alternative boundary condition of "the expiration of a reasonable amount of time, as agreed upon by the NRC Chief Examiner and the facility licensee." as described in NUREG 1021 ES-3.3. Actions Taken: Clarification added to the scenario outline.
8.	**NRC:**	(Scenario NRC2022-2 / Critical Task #2) – Please provide additional detail that describes the bounding nature of "implementation of recovery strategy for Extended Loss of AC Power (ELAP)". Does this mean before the "ELAP Procedure" is implemented … or before at least one action is taken within the "ELAP Procedure" … or something else? What is/are the entry criteria for the "ELAP Procedure"?
	Facility:	If the Crew fails to successfully restore power as expected in the scenario, they will perform step 11 of ECA-0.0 as follows: "Check if AC Emergency Buses can be restored within 4 hours of the SBO event." If all attempts at power restoration have been unsuccessful, the Crew will conclude that 4 hour restoration is not possible. A Note prior to this step states that DC Bus deep load shedding must be completed within one hour of the ELAP event. Thus, the Crew cannot wait for 4 hours before exercising the RNO action for step 11, which is "Consult with the SM to declare ELAP event." Once an ELAP is declared, the Crew will perform the Deep Load Shed by implementing 2-OHP-4027-FSG-4, ELAP Power Management. Performance of this procedure will result in local action to remove DC control power from the breakers necessary to restore AC power to any of the safety buses. Therefore, once direction is given to perform this procedure, power restoration will not be possible in the scenario. Actions Taken: Clarified the Measurable Performance Standard to "Energize at least one ac emergency bus (T21D) prior to direction to perform the Deep Load Shed by implementing 2-OHP-4027-FSG-4, ELAP Power Management." Clarification added to the scenario outline.

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Simulator Scenario Outline Comments		
9.	**NRC:**	(Scenario NRC2022-4) – Why isn't initiation of emergency boration or insertion of control rods identified as a Critical Task in this ATWS scenario?
	Facility:	As described under #10 below, SI will be actuated due to the initial event resulting in the ATWS. This will result in the realignment of ECCS equipment to inject borated RWST water through both charging pumps. This would exceed the total boration flow that would be established by emergency boration. Since this boration flow path is not disabled from automatic operation, the task to add negative reactivity would not be critical. No additional actions to revise the scenario outlines are recommended by the Facility.
10.	**NRC:**	(Scenario NRC2022-4) – There does not appear to be a loss of primary or secondary coolant, stuck open PORVs, or other RCS leaks in this scenario. AFW should be running by the time the crew exits FR-S.1. Why does the crew "perform the actions of E-0, E-1, and ES-1.1 to terminate SI" (taken from the end of the event description details) after they complete FR-S.1?
	Facility:	During scenario development, an automatic SI frequently occurred due to low pressurizer pressure caused by rapid cooldown of the RCS from steam dump operation after reactor trip breakers were locally opened. Based on alternative timing of crew responses, there were some instances where the SI did not occur. Actions Taken: In order to ensure scenario consistency requiring the Crew to complete actions for SI Termination, the initiating event for loss of both Main Feed Pumps was changed from an SSPS relay failure to an inadvertent SI, which also results in a loss of both MFPs and the ATWS.

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11. **NRC:** (Form 3.4-1, Events and Evolutions Checklist) – The form appears to identify the total number of events for each event type. In accordance with Note 2 of the instructions, "fill in the associated event number[s] from Form 3.3-1". For example, the SRO-U row of Form 3.4-1 from Crew 1 should look something like the following:

Form 3.4-1 Events and Evolutions Checklist

Facility: DC COOK Date of Exam: 7/18/22 Operating Test No.: Crew 1

APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		NRC2022-2 NOTE: A surrogate US will be used for this scenario			NRC2022-3			NRC2022-4									
		POSITION			POSITION			POSITION			POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		RO	I	U
RO ☐ SRO-I ☐ SRO-U ☒	RX													0	1	1	0
	NOR				1			1						2	1	1	1
	I/C				3,4, 5,6			3,4,5 ,6						8	4	4	2
	MAJ				7			7						2	2	2	1
	Man.Ctrl													0	1	1	0
	TS				3,6			4,6						4	0	2	2

Facility: Actions Taken: Form 3.4-1 was revised to substitute associated event numbers as required instead of the total number of each type of event in each scenario as originally submitted.

12. **NRC:** (Scenario NRC2022-4 & Scenario NRC2022-Spare) – How is NRC2022-4, Event #8 (Auto turbine trip/Main Steam Isolation failures) different from NRC2022-SPARE, Event #7 (Auto Turbine Trip failure; Steam Line Isolation failure)?

Facility: Although the procedure used to trip the turbine was different between the two scenarios, the actions were not fundamentally different between the two scenarios.

Actions Taken: Modified NRC2022-4 Event 8 to change the malfunction from an Automatic Turbine Trip failure to an automatic and manual turbine trip failure. In the revised version of NRC2022-4, the expected success path will be actuation of an ATWS Runback using the Turbine Control System HMI to ramp all control valves closed or by manually closing SG stop valves as directed by FR-S.1. This option is not available in E-0, which will be the procedure in effect for the spare scenario Event 7. Success in the spare scenario will be by using the manual turbine trip switch. Closure of SG stop valves in the spare scenario will be disabled by other malfunctions.

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Written Outline vs. Operating Outline Potential Overlap Comments		
1.	**NRC:**	(Written Outline Item #38) – Ensure written exam item #38 (Q#28) differs from Dynamic Scenario 4 Event 3, which both test CVCS failures and their impact on pressurizer level and pressure.
	Facility:	The items are different as the scenario event is a charging flow instrument failing low. This opens the charging flow control valve in automatic. The written question tests the manual control of the charging flow control valve in manual during a plant cooldown for inventory control.
2.	**NRC:**	(Written Outline Item #36) – Ensure written exam item #47 (Q#87) differs from Dynamic Scenario 2 Event 4, which tests the applicant's ability to determine and respond to the impacts of a failure of pressurizer level control system on the pressurizer pressure control system.
	Facility:	The items are different as the scenario event is a level channel failing high such that pressurizer heaters energize due to high level deviation from set point. The written question tests the required action if level lowers in a plant transient such that heaters are tripped and must be reset. Both involve pressurizer heater response but for different reasons and require different actions to be taken.