Facility: FERMI NUCLEAR POWER STATION											**Exam Date: June 17 – 28, 2019**	
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-A1.1 802-4101~~-431~~-531	Conduct of Operations 2.1.7 Thermal Limit Verification (MAPRAT) – SRO ~~with Tech Specs (SRO Only)~~	2	X	X					X			~~E~~ S	**NRC**: • Provide separate/dedicated JPM versions for both the ROs and SROs (JPM numbers should be different). • Enhance the Task Standard to include the results of the Core Thermal Limit verification. • First Initial Condition (IC) bullet is confusing. The IC states: **"Today is Sunday (*previous Sunday's date*) Dayshift."** What does this actually mean and how is it used to complete Step 16 of 24.000.02, Attachment 2, given the marked-up copy of the Attachment? How is the applicant verifying completion of the surveillance withjn the previous 24 hours? Clarification / enhancement required. • The third bulleted item of the Cue states: ***"There has been no TAU change."*** Separately, Steo 16.0, Substep (b) of 24.000.02, Attachment 2, states: ***"If … a TAU change has not been updated in the computer, inform the SNE/STA to perform 54.000.07, "Core Performance Parameter Check," in accordance with Step 16.0 c, and NA Step 16.0 b."*** How is the applicant supposed to interpret the TAU information in the cue relative to Step 16.0, Substep (b)? ***"No TAU change"*** in the cue could reasonably be interpreted as "***a TAU change has not been updated in the computer."*** • The step numbers in 24.000.02, Attachment 2, which correlate with the steps scripted in the JPM, should be provided in the Element column of the JPM to assist the examiner. • Provide an answer key for 24.000.02, Attachment 2.

													Fermi Response: • Separate RO (-431) and SRO (-531) versions created, with separate numbers. • Task Standard enhanced to include the results of the Core Thermal Limit verification. • Changed dates / times to Sunday 6/16/2019. Changed dates on filled-out attachment to be consistent. • Revised TAU statement in cue for clarification. • Added step numbers in Element column. • Key created for JPM 24.000.02, Attachment 2.
SRO-A1.2 802-4101-195	Conduct of Operations 2.1.14 Perform Plant-Wide Announcement for Probable Aircraft Threat	2		X								~~E~~ S	**NRC**: • The Initiating cue is leading. SRO applicants should be able to work their way through EP-530 without being instructed to implement Enclosure B of the procedure. Remove "Enclosure B" from the Initiating Cue and revise the JPM accordingly to raise the Discrimination Validity of the JPM. **Fermi Response**: • Enclosure B removed from Initiating Cue statement.
SRO-A2 804-0001-191	Equipment Control 2.2.40 Determine HPCI OPERABILITY and apply Technical Specifications	3										~~E~~ S	**NRC**: • Ensure that the handout included with this JPM is in color. Hardcopy version on pink paper is black and white, making the indications difficult to discern. • Handout shows that HPCI Steam Supply Outboard Isolation Valve E4150-F003, is closed. This lineup would also appear to INOP HPCI. Is HPCI considered to be in a Standby lineup with the F003 Valve closed at Fermi? Additional information required. • Revise the Task Standard to identify that the Condition E, Actions E.1 and E2, apply for LCO 3.5.1. **Fermi Response**: • Student handout will be printed, in color, on white paper with a colored border. • E4150-F003 is normally closed with a

													bypass valve that is normally open to keep downstream piping warm. • Task standard revised to identify that the Condition E, Actions E.1 and E2, apply for LCO 3.5.1.
SRO-A3 802-4101-194	Radiation Control 2.3.4 Calculate Estimated Dose, Determine if Extension is Required, and Initiate Dose Extension Request	3										~~E~~ S	***Early Review JPM*** **NRC:** • Critical Step 1 is to calculate the Projected Accumulated Dose value. The calculation uses a value of 600 mrem for the inspection activity in the North RWCU Room. It does not appear that the information necessary to make this determination has been provided in the Initial Conditions / Initiating Cue. • **Step 4**: To ask a question intended to be a Critical Step after the applicant has already submitted Form MRP12001 is inappropriate. This step should be included as part of the JPM before the Form MRP12001 is turned in. Note that the Task Standard will require revision to accommodate this change to the JPM. • Provide a marked up key for Form MRP12001. • What is the expected validation time for this JPM? • Provide a map of the RWCU pump room and include steps for the applicant to calculate accumulated dose. **Fermi Response**: • Necessary information has been added to the cue. • Moved requirement to determine approval authority signatures to cue. Revised task standard. • A Key has been provided. • Estimated time duration is 22 minutes. • RWCU Pump Room and associated steps to calculate accumulated dose were added.
SRO-A4 173-1002-181	Emergency Procedures/Plan 2.4.30	3			X							~~E~~ S	**NRC**: • Completion of Form MLS05004, ***"Fermi 2 Event Notification Worksheet,"*** should be labeled as a Critical Step.

	Determine Immediate Notification Requirements for reportable Events												**Fermi Response**: • Made completion of form critical.

RO-A1.1 802-4101-431	Conduct of Operations 2.1.7 Thermal Limit Verification (MAPRAT) ~~with Tech Specs~~	2	X	X					X			~~E~~ S	**NRC**: • For the RO version of this JPM, remove all items and references that are applicable to SROs only, including the Task Standard. .Provide separate/dedicated JPMs for both the ROs and SROs (JPM numbers should be different). • Revise the JPM Job Title on the RO version of Outline Form ES-301-1 to read ***"Thermal Limit Verification (MAPRAT)."*** • Enhance the Task Standard to include the results of the Core Thermal Limit verification. • First Initial Condition (IC) bullet is confusing. The IC states: **"Today is Sunday (*previous Sunday's date*) Dayshift."** What does this actually mean and how is it used to complete Step 16 of 24.000.02, Attachment 2, given the marked-up copy of the Attachment? How is the applicant verifying completion of the surveillance withjn the previous 24 hours? Clarification / enhancement required. • The third bulleted item of the Cue states: ***"There has been no TAU change."*** Separately, Steo 16.0, Substep (b) of 24.000.02, Attachment 2, states: ***"If … a TAU change has not been updated in the computer, inform the SNE/STA to perform 54.000.07, "Core Performance Parameter Check," in accordance with Step 16.0 c, and NA Step 16.0 b."*** How is the applicant supposed to interpret the TAU information in the cue relative to Step 16.0, Substep (b)? ***"No TAU change"*** in the cue could reasonably be interpreted as "***a TAU change has not been updated in the computer."*** • The step numbers in 24.000.02, Attachment 2, which correlate with the steps scripted in the JPM, should be provided in the Element column of the JPM to assist the examiner. • Provide an answer key for 24.000.02, Attachment 2. **Fermi Response**: • New SRO Only version created with separate numbers [i.e., RO (431) and SRO (531)]. SRO-only steps removed from RO version. • Title changed by eliminating the words

													"with Tech Specs." • Task Standard revised. • Changed dates / times to Sunday 6/16/2019. Changed dates on filled-out attachment to be consistent. • Revised TAU statement in cue for clarification. • Added step numbers in Element column. • Key created for JPM 24.000.02, Attachment 2.
RO-A1.2 802-4101-191	Conduct of Operations 2.1.45 Calculate Secondary Containment Vacuum	3										S	
RO-A2 802-4101-192	Equipment Control 2.2.41 ~~Determine the Isolation Valves for a Leak~~ Obtain and Interpret Electrical Drawings	~~1~~ 3										~~U~~ S	**NRC**: • LOD=1. Low Discrimination Validity (two isolation valves for a Pressure Indicator and determination that a Flow Indicator shares the same isolations. **Fermi Response**: • New JPM written to evaluate K/A at a higher LOD. JPM has new title (column at left has been updated with new title).
RO-A3 802-4101-193	Radiation Control 2.3.4 Calculate Estimated Dose and Determine if Extension is Required	3										S	

Simulator/In-Plant JPMs	1 Safety Function and K/A												
S1 315-0104-184	1 202001 A4.06	2										~~E~~ S	**NRC**: • Expand the Task Standard description to include the Alternate Path aspect of the JPM. **Fermi Response**: • Task Standard description expanded.
S2 315-0143-181	2 217000 A4.03	3										~~E~~ S	**NRC**: • Expand the Task Standard description to include the Alternate Path aspect of the JPM. **Fermi Response**: • Task Standard description expanded.
S3 315-0105-181	3 239002 A4.01	3										~~E~~ S	**NRC**: • Expand the Task Standard description to include the Alternate Path aspect of the JPM. **Fermi Response**: • Task Standard description expanded.
S4 315-0141-181	4 203000 A4.02	3										~~E~~ S	**NRC**: • Expand the Task Standard description to include the Alternate Path aspect of the JPM. **Fermi Response**: • Task Standard description expanded.
S5 315-0165-181	6 264000 A4.04	3										S	
S6 315-0127-191	7 212000 A4.14	2										S	
S7 315-0172-001	8 286000 A2.06	2										S	**NRC**: • On Form ES-301-2, RO and SRO(I) versions, include the Diesel Fire Pump in the title/description, since a start of both the Electric and Diesel Fire Pumps is required to restore system pressure. **Fermi Response**: • Form ES-301-2, RO and SRO(I) revised to include the Diesel Fire Pump in the title/description. • Note: JPM title was also revised to match exactly.

S8 802-2001-191	9 290003 A4.03	3		X								~~E~~ S	***Early Review JPM*** **NRC**: • Task Standard needs to specify "South" Intake, rather than simply stating that the "CCHVAC Emergency Intake is aligned to the intake with the lowest indicated radiation level." • For Steps 2 and 4, it is assumed that all parts of the step are considered to be critical based on location of the asterisk. It appears that the only critical aspect of these two steps are the Rad Monitor readings. • Cueing to be provided by NRC Examiners in Steps 2 and 4 is excessive. Cueing for these steps should come from the booth. • There is only one Critical Step that has verifiable action. A JPM with less than two verifiable action Critical Steps is not appropriate because it limits the ability of the examiner to properly evaluate the applicant. • What is the basis for the 30 minute Time Critical Action (TCA)? • What is the expected validation time for this JPM? • Place the cues below the associated step instead of before the step. **Fermi Response**: • Task standard revised to specify "South" Intake. • Moved critical step asterisks, within Steps 2 and 4, to only the Rad Monitor readings. • A booth operator will be assigned as requested for this JPM. • Revised Critical Steps to better align with references such that two Critical Steps with verifiable actions now exist. • Could not locate adequate basis for TCA. Removed TCA from JPM. • Estimated time duration is 20 minutes. • Cues placed below the associated procedure steps. **NRC Supplemental Comment**: • CUE identifiers need to specify "**BOOTH CUE**." • In addition to identifying only the Rad Monitor readings within Steps 2 and 4 as the Critical Step information, place asterisks at the associated step numbers

													as well for ease of identification. The asterisks are small and easy to miss for the bulleted item Critical Step information. **Fermi Supplemental Response**: • "BOOTH" added to CUEs. • Steps 2 and 4 marked as critical steps. **NRC Supplemental Comment**: • JPM revised during the OV week to relocate the Rad Monitor readings from Steps 2 and 4, to the Initial Conditions, to facilitate efficient administration of the JPM. JPM Element steps revised accordingly.
P1 315-0172-207	4 217000 A2.03	2	X									S	**NRC**: • Editorial: Task Standard is awkwardly written. Suggest adding a semi-colon after AOP 20.000.22 to improve the readability and inserting the word "subsequent" before the word "actions." **Fermi Response**: • Task standard revised.
P2 802-3006-181	5 223001 A2.07	3										S	
P3 802-2001-192	7 295016 AA1.07	3										S	**NRC**: • Add a Cue to Step 3 for the Examiner to inform the applicant (if asked) that a CTG dedicated operator is not available to start the Blackstart CTG, so that the start is performed by the applicant. **Fermi Response**: • The dedicated CTG operator is not a normally 'manned' position. This position is only required when CTG11-1 is out of service and another CTG is designated the Blackstart CTG, since only CTG11-1 has remote start capability. Since the Initial Conditions already state that CTG 11-1 is the Blackstart CTG, this change is not necessary.

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: FERMI NUCLEAR POWER STATION					Scenario: 1				Exam Date: June 17 – 28, 2019
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 – Place D1 RHR in Torus Cooling								S	***Normal Evolution***
2 – Control Rod Drift Inward					TS		X	S	***2017 NRC Exam; Scenario 3, Event 2.***
3 – D1 RHR Pump Shaft Shear					TS			S	
4 – Electric Fire Pump Spurious Start					TS			S	
5 – TB Steam Tunnel Area Temp > 190°F								S	***Reactivity Manipulation***
6 – SRV 'M' Fails Open			X					~~E~~ S	**NRC**: • What is/are the verifiable/mitigative action(s) for this event? Listed as a Component Failure for the BOP. The BOP directs the SRV fuses to be pulled but does not perform the action. The only apparent action performed by the BOP according to the D2, is to reset the Low-Low Set Logic. In order to meet the intent of the below guidance from NUREG-1021, recommend that the SRV closes in response to the BOPs initial actions of cycling the SRV "Open" and "Close" PBs. o Appendix D, Section C.2.b, "Total Malfunctions," states: ***"To count as a separate malfunction, they must involve a significant system response and require operator action to correct."*** o ES-301, Attachment 2, "Verifiable Action Guidelines," states *"Section D.5.d of this examination standard specifies that an applicant should only be given credit for those scenario events that require the applicant to perform actions that provide insight to the applicant's competence. This means that the applicant must **perform** some action, not just make a telephone call to an operator to take some action in the field. An applicant on the telephone directing an operator to take some action in the field while he or she is observing control room indications is **NOT** performing a verifiable action; instead, the applicant is directing."* **Fermi Response**: • SRV failure change to allow SRV to be closed from the control room.
7 – Un-isolable Tours Leak								S	***Major Event*** **NRC**: • Remove the statement *"Manual Scram Action will be unsuccessful"* from the D1

Requiring Manual SCRAM									Event Description for Event 7. This information is captured in the D1 Event Description for Event 8. **Fermi Response**: • Statement removed from the D1 Event Description for Event 7.
8 – RPS Failure (ATWS)						CT1		~~E~~ S	**NRC**: • Flag the CT performance step(s) in the D2. **Fermi Response**: • CT summary added at performance steps to flag CT for examine during evaluation.
9 – Bypass Valves Fail Closed Requiring ED						CT2		~~E~~ S	***Major Event*** **NRC**: • Flag the CT performance step(s) in the D2. **Fermi Response**: • CT summary added at performance steps to flag CT for examine during evaluation.
9	**0**	**0**	**1**	**0**	**3**	**2**	**8**	**~~E~~ S**	

Facility: FERMI NUCLEAR POWER STATION					Scenario: 2				Exam Date: June 17 – 28, 2019
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 – Alternating RBCCW Pumps							X	S	***Normal Evolution*** ***2017 NRC Exam; Scenario 2, Event 1.***
2 – APRM Flow Unit Failure							X	S	***2018 NRC Exam; Scenario 2, Event 2.***
3 – Trip of the Center RBCCW Pump					TS			S	
4 – Loss of Control Power to Bus 72C					TS			S	
5 – North Heater Drain Pump Trip with Manual Runback Failure								S	
6 – P/F Map Conditions Require CRAM Array Insertion								S	***Reactivity Manipulation***
7 – Jet Pump Failure					TS			~~E~~ S	**NRC**: • What is/are the verifiable/mitigative action(s) for this event? Listed as a Component Failure for the ATC. Fermi response to the NRC 150-day outline comment for this item states the following: *"Execution of Condition A of 20.138.02, Jet Pump Failure requires the ATC to act to Monitor core for thermal-hydraulic instability (24.000.01 Att. 34B). The ATC will place Rod Select Power to ON (H11-P603) and select different rods as required using the rod matrix."* The ATC Verifiable Action steps from procedure 24.00.01 Attachment 34B are missing from the D2 and need to be scripted. Separately, in order to meet the intent of the below guidance from NUREG-1021, recommend introducing power oscillations when the ATC is performing 24.000.01, Attachment 34B, so that the ATC Verifiable Actions include diagnosing the oscillations and placing the Mode Switch to Shutdown. o Appendix D, Section C.2.b, "Total Malfunctions," states: ***"To count as a separate malfunction, they must involve a significant system response and require operator action to correct."*** o ES-301, Attachment 2, "Verifiable Action Guidelines," states *"Section D.5.d of this examination standard specifies that an applicant should only be given credit*

									*for those scenario events that require the applicant to perform actions that provide insight to the applicant's competence. This means that the applicant must **perform** some action, not just make a telephone call to an operator to take some action in the field.* **Fermi Response**: • Enhanced the steps for 24.000.01, Attachment 34B • Added Neutron Flux Instability and change the SCRAM to be action taken in response to the Neutron Flux Instability vice the LOCA. LOCA now occurs when the MODE SW in placed in SHUTDOWN. Malfunction Number added to D1 and D1 updated.
8 – SBLOCA								S	***Major Event***
9 – DIV 1 EECW Failure To Auto Start							X	S	***2018 NRC Exam; Scenario 3, Event 7.***
10 – Loss of Level Indication (Requires ED and RPV Flooding)						CT1 CT2	X	~~E~~ S	***Major Event*** ***2018 NRC Exam; Scenario 3, Event 8 (Intent of Appendix D, Section C.1.f, overlap guidance for Major Events, met, as determined by Chief Examiner).*** **NRC**: • Flag CT performance step(s) in the D2. • For both CTs, need some way to capture the time the Loss of all RPV level indication condition exists, in order for the examiners to be able to properly evaluate the failure criterion times for each. Suggest a note within the D2 for the Booth to notify the Examiner driving the scenario when that time is. Also need to provide a blank space at the associated step in the D2s for this time to be recorded. **Fermi Response**: • CT summary added at performance steps to flag CT for examine during evaluation. • Blank space added to CT to record times.
10	**0**	**0**	**0**	**0**	**3**	**2**	**6**	**~~E~~ S**	

Facility: FERMI NUCLEAR POWER STATION					Scenario: 3				Exam Date: June 17 – 28, 2019
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 – Shift TBCCW Pumps								S	***Normal Evolution***
2 – FW Flow A Transmitter Failure								S	
3 – CCHVAC Return Air Fan Trip					TS		X	S	***2018 NRC Exam; Scenario 2, Event 3.***
4 – Shift TBCCW Pumps After Leak Identified on Running Pump								S	
5 – Main Steam Line Flow Transmitter Failure					TS			S	
6 – AVR General Alarm (4D53) with ARP Initiated Power Reduction								S	***Reactivity Manipulation***
7 – AVR Turbine Trip with ATWS (Manually Insert Rods per 29.ESP.03)						CT1 CT2 CT3	X	~~E~~ S	***Major Event*** ***2017 NRC Exam; Scenario 2, Event 8/9 (Intent of Appendix D, Section C.1.f, overlap guidance for Major Events, met, as determined by Chief Examiner).*** **NRC**: • Flag CT performance steps in the D2. • Why wouldn't Terminate & Prevent actions be a CT for this ATWS Event knowing that RPV Level will be lowered to <114 inches (50-100 inch level band)? • Will EOP 29.100.01, Sheet 2, "Primary Containment Control," be used during this scenario? CT "ATWS-PWR" basis is predicated upon the challenge to containment, specifically, exceeding the HCL curve. Assumption is that heat will be added to containment during the high power ATWS (Total Scram Failure) in this scenario, and that Torus Water Temperature will exceed the 95°F EOP entry condition. Primary Containment Control EOP entry and applicable actions have not been scripted in the D2. **Fermi Response**:

									• CT summary added at performance steps to flag CT for examine during evaluation. • CT3 for ATWS T&P Added and included in Column 7 of this Table. • Script for Torus Water Temperature will exceed the 95°F EOP entry condition added.
8 – SLC Pump Trip						CT2		~~E~~ S	**NRC**: • Flag CT performance steps in the D2. • Add the "CT2"designation to Event 8 on the D1. **Fermi Response**: • CT summary added at performance steps to flag CT for examine during evaluation. • "CT2" designation added to Event 8 on the D1.
8	**0**	**0**	**0**	**0**	**2**	**~~2~~ 3**	**6**	**~~E~~ S**	

Facility: FERMI NUCLEAR POWER STATION					Scenario: 4 (NOT USED)			Exam Date: June 17 – 28, 2019	
1 Event	2 Realis m/ Cred.	3 Required Actions	4 Verifiable actions	5 LOD	6 TS	7 CTs	8 Scenario Overlap	9 U/E/S	10 Explanation
[redacted]									
[redacted]									
[redacted]									
[redacted]									
[redacted]									
[redacted]									

									NOTE: *Scenario 4 will NOT be used on the 2019 Fermi Exam due to a reduction in the class size from 18 to 15 applicants, requiring 6 (includes the Spare) instead of the 7 scenarios initially planned.*

Facility: FERMI NUCLEAR POWER STATION					Scenario: 5				Exam Date: June 17 – 28, 2019
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 – DIV 1 EESW Pump Start								S	***Normal Evolution***
~~2 – GSW Pump Swap~~ 2 – Reduce Power to Recover Control Rod							~~X~~	S	~~***2017 NRC Exam; Scenario 3, Event 3***~~ ***Reactivity Manipulation*** **Fermi Response**: • GSW Pump Swap Event removed based on I/C totals and other events that were added. Event 2 has been replaced by the Event 4 Reactivity Manipulation (Reduce Power to Recover Control Rod).
~~3 – Swap CRD Stabilizing Valve Failure~~ 3 – CST Level Instrument Failure					TS			~~E~~ S	**NRC**: • This event is scripted such that a field report prompts the crew to swap CRD Stabilizing Valves. Essentially, this is the equivalent of a "Normal Evolution" requiring no event diagnosis. Event 4 is a power reduction using Recirc Flow to recover the single rod. Suggest swapping the sequence of Events 3 and 4 so that the ATC applicant can diagnose the CRD Stabilizing Valve failure when attempting the rod recovery. **Note**: This event is the **only** "Abnormal Event" Instrument or Component (I/C) Malfunction scripted for the ATC before the start of the Major Transient. The only other I/C malfunction specified for the ATC is the "Failure to Scram" post EOP Entry Component Malfunction in Event 9. Appendix D, Section C.2.d, "Abnormal Events," states: ***"Components or instrument failures that occur following EOP entry do not count toward the recommended total number of abnormal events."*** This scenario, as presently scripted, reduces the examiner's ability to properly evaluate an applicant in the ATC position. Separately, the Event 9 malfunction does not appear to meet the intent of the NUREG with respect to being a "Separate Malfunction" with "Verifiable Action," given that efforts to insert control rods are unsuccessful, as scripted in the D2 (see Event 9 comments below). **Fermi Response**: • Based on Chief Examiner feedback, a major rewrite of Scenario 5 order and events was warranted. Events 2, 3, and 6 were replaced to ensure compliance with the NUREG for I/C & TS scenario event totals and "Verifiable Actions." Event 4 Power Reduction was moved to Event 2 to enhance the flow of the scenario. Replaced the Event 3 Stabilizing Valve Failure with the CST level Inst Failure from Scenario 4, which also doubles as a TS event for the SRO. Inserted a trip of A CRD Pump into Event 4 for the ATC. I/C & TS totals changed as follows: TS number is now 2 instead of 1. BOP I/C events reduced from 3 to 2. Total number of Scenario 5 events reduced from 9 to 7. A recalculation of ES-301-5 totals shows all candidates with a minimum of 5 I/C events for the required 4, and all SROs well over the 2 TS

									minimum. Scenario 4 will not be used.
~~4 – Reduce Power to Recover Control Rod~~ 4 – A CRD Pump Trip					TS			S	***~~Reactivity Manipulation~~*** **NRC**: • ~~See NRC Event 3 comments above that pertain to Event 4.~~ **Fermi Response**: • Power Reduction moved to Event 2 to enhance flow of the scenario. Trip of A CRD Pump inserted into Event 4 for the ATC.
5 – Failure of North Steam Tunnel Cooler								S	
~~6 – Damage to HPCI E4150-F600 Power Supply~~					~~TS~~			~~S~~ N/A	**NRC**: • This TS event is the only TS scripted for this scenario. A minimum two TS events per scenario are required IAW the 301-7 guidance provided at the end of this section. **Fermi Response**: • Two other TS events with "Verifiable Actions" added to Events 3 & 4. This "Non-Verifiable Action" TS event is no longer needed and has therefore been removed.
~~7 – RCIC Steam Leak~~ 6 – RCIC Steam Leak; Secondary Containment Exceeds MSO Temperature in RCIC Room		X	X			CT1		~~U~~ S	***Major Event*** **NRC**: • The RCIC Steam Leak is listed as a Component Malfunction for the BOP. There are no operator actions taken that correct the RCIC Steam Leak condition (the unisolable leak is a necessary condition in this scenario because it leads to the Major Event). A separate Component Malfunction will be required for the BOP to meet the intent of the NUREG guidance provided below: o Appendix D, Section C.2.b, "Total Malfunctions," states: ***"To count as a separate malfunction, they must involve a significant system response and require operator action to correct."*** o ES-301, Attachment 2, "Verifiable Action Guidelines," states *"Section D.5.d of this examination standard specifies that an applicant should only be given credit for those scenario events that require the applicant to perform actions that provide insight to the applicant's competence.* **Fermi Response**: • Previous Event 7 & 8 combined and renumbered as Event 6, which is now the Major Event for the revised scenario. Credit for previous Event 7 Component Malfunction removed. • CT-1 specified in Column 7 of this Table for Revised Event 6.
~~8 – Secondary Containment Exceeds MSO~~						~~CT1~~		~~S~~	***~~Major Event~~*** **NRC**: • Flag CT performance steps in the D2.

~~Temperature in RCIC Room~~									**Fermi Response**: • Previous Event 7 & 8 combined and renumbered as Event 6, which is now the Major Event for the revised scenario. • CT summary added at Revised Event 6 performance steps to flag CT for examine during evaluation.
~~9~~ 7 – ATWS and Secondary Containment Exceeds MSO Temperature in 2 Areas		X	X			CT2		~~U~~ S	**NRC**: • This event lists a "10 Rod-Out ATWS" as a Component Malfunction for the ATC. In order to count this as a "**Separate Malfunction**" with "**Verifiable Action**," there has to be operator action to correct the malfunction. As scripted, the ATWS malfunction is not correctable in this scenario because it drives the crew to implement EOP 29.100.01, Sheet 3A, "ED ATWS" as the mitigative strategy. In order to credit the ATC with the ATWS Malfunction, recommend that the ATC have success inserting rods during implementation of the "ED-ATWS" EOP (after ≥ 5 SRVs are open), with kick-out to Step ED-1, Sheet 3, IAW Override Step FSED-OR1. Otherwise, a separate post EOP Entry malfunction will be required for the ATC to meet the intent of the NUREG guidance provided below: ○ Appendix D, Section C.2.b, "Total Malfunctions," states: ***"To count as a separate malfunction, they must involve a significant system response and require operator action to correct."*** ○ ES-301, Attachment 2, "Verifiable Action Guidelines," states *"Section D.5.d of this examination standard specifies that an applicant should only be given credit for those scenario events that require the applicant to perform actions that provide insight to the applicant's competence.* This scenario, as presently scripted, reduces the examiner's ability to properly evaluate an applicant in the ATC position. • Flag CT performance steps in the D2. **Fermi Response**: • Event 9 renumbered as Event 7 for the revised scenario. • Added script to insert all rods with Scram Reset Scram. • CT summary added at performance steps to flag CT for examine during evaluation.
~~9~~ **7**	**0**	**~~2~~** **0**	**~~2~~** **0**	**0**	**~~1~~** **2**	**2**	**7**	**~~U~~** **S**	**NRC**: • Scenario evaluated as Unsatisfactory using the calculation for ***"Percentage of Unsatisfactory Scenario Elements"*** at the end of this Scenario Table Section, the basis of which is two "Unsat" Events (7 & 9) for the ATC position and less than the required minimum two TS Events per scenario. **Fermi Response**: • Based on Chief Examiner feedback, a major rewrite of Scenario 5 order and events was warranted. Events 2, 3, and 6 were replaced to ensure compliance with the NUREG for I/C & TS scenario event totals and "Verifiable Actions." Event 4 Power Reduction was moved to Event 2 to enhance the flow of the scenario. Replaced the Event 3 Stabilizing Valve Failure with the CST level Inst Failure from Scenario 4, which also doubles as a TS event for the SRO. Inserted a trip of A CRD Pump into Event 4 for the ATC. I/C & TS totals changed as follows: TS number is now 2

									instead of 1. BOP I/C events reduced from 3 to 2. Total number of Scenario 5 events reduced from 9 to 7. A recalculation of ES-301-5 totals shows all candidates with a minimum of 5 I/C events for the required 4, and all SROs well over the 2 TS minimum. Scenario 4 will not be used. **NRC Supplemental Comment**: • Revised Scenario 5 validated successfully during OV week. Revised Scenario 5 determined to be Satisfactory by the Chief Examiner.

Facility: FERMI NUCLEAR POWER STATION					Scenario: 6 (SPARE)				Exam Date: June 17 – 28, 2019
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
									Scenario 6 has been designated as the Spare Scenario.

Facility: FERMI NUCLEAR POWER STATION					Scenario: 7 (EARLY REVIEW SCENARIO)			Exam Date: June 17 – 28, 2019	
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 – Raise Reactor Power; Maintain BPVs 15-30% Open								S	***Reactivity Manipulation***
2 – HPCI INOP Based on Results of Low Pressure ST					TS			S	**NRC**: • During OV week, Chief Examiner determined that evaluation of the Single Loop TS limitation for Thermal Power less than 66.1% RTP, with the Unit in Mode 2 at 3 to 4% power, was not an effective means of testing an applicant's knowledge of, and ability to apply TSs. Consequently, Single Loop TS 3.4.1 (Recirc Run Away Event below), was replaced with TS 3.5.1, ECCS – Operating, which was inserted as New Event 2. Subsequent Events were renumbered accordingly.
~~2~~ 3 –Swap Station Air Compressors (Running SAC Cycling Under Load)								~~E~~ S	**NRC**: • The 3rd role play statement on Page 3 of 4 under the section for "Shutdown of the Station Air Compressor," states ***"When directed report Load Demand Switch to 100% or the Mode Selector Switch to MODULATE for the shutdown compressor."*** The step to which this applies appears to be associated with the compressor that will remain in service, and **not** the shutdown compressor. • The steps to shutdown the Station Air Compressor on page 3 of 4 appear to have been scripted twice. • The steps for swapping Station Air Compressors are difficult to follow. As written, the D2 is a compilation of "in-series" run-on action steps and associated role play statements (cues) with spacing that is difficult to discern based on the use of clear check boxes that diminish the overall readability. Recommend the following to more clearly delineate and make it easier to distinguish between the actions scripted: o The use of bullets (see presentation / convention utilized in the NRC 2018 Fermi Exam). o Place and indent the cues below the step to which they correspond instead of before the step. o Currently the cues and associated steps are both annotated with clear check boxes. Use a different convention for each to set the two apart (see presentation / convention utilized in the NRC 2018 Fermi Exam). **Fermi Response**: • Event re-written based on feedback. Alarms now lead to AOP entry and AOP actions to start standby air compressor. SOP section removed. All Cues placed after steps.
~~3~~					TS			~~E~~ S	**NRC**: • This TS event is the only TS scripted for this scenario. In accordance with ES-301,

~~4~~ – Loss of Bus 65E									Section D.5.d, each scenario set must require each applicant to respond to the TS evaluations in the quantities identified for the applicant's license level on Form ES-301-5. **Fermi Response**: • TS event added per direction. Single LOOP (Event 4). **NRC Supplemental Comment:** • During OV week, Chief Examiner determined that evaluation of the Single Loop TS limitation for Thermal Power less than 66.1% RTP, with the Unit in Mode 2 at 3 to 4% power, was not an effective means of testing an applicant's knowledge of, and ability to apply Tech Specs (TS). Consequently, Single Loop TS 3.4.1 was replaced with TS 3.5.1, ECCS – Operating, which was inserted as New Event 2.
~~4.~~ 5 – Recirc Pump Run-Away Requiring Manual Pump Trip					~~TS~~			S	See NRC Supplemental Comment in Event 4 above regarding Single Loop TS 3.4.1.
~~5~~ 6 – CRD Pump Trip Requiring Scram / RPS Failure / Insert Rods Using ARI						CT1	X	~~E~~ S	***2018 NRC Exam; Scenario 3, Event 4/5.*** **NRC:** • CRD Pump Trip with HCU accumulator low pressure alarm (Event 4) is listed as a Component malfunction for the ATC. There do not appear to be any verifiable/mitigative operator actions associated with this event as presently scripted. The action to place the Mode Switch in shutdown is unsuccessful due to failure of Manual RPS to cause a scram (Total Scram Failure; all rods stuck). Appendix D, Section C.2.b, "Total Malfunctions," states: ***"To count as a separate malfunction, they must involve a significant system response and require operator action to correct."*** This scenario, as presently scripted, reduces the examiner's ability to properly evaluate an applicant in the ATC position. • Flag CT performance steps in the D2. **Fermi Response**: • Event update per phone discussion with CE. CRD Pump Trip requires SCRAM w/ ATWS as one event. Listed as one component failure. LOCA is now the major event. Loss of high pressure feed and CT now listed as separate event at end, for the post EOP entry component failure. Also due to combining events as required by Chief Examiner, the ATC is short 1 component failure. Added Recirc pump run-away event that will require manually tripping Recirc pump, to give the ATC a replacement component failure. • CT summary added at performance steps to flag CT for examine during evaluation.
~~6~~ 7 – SBLOCA								S	***Major Event***
~~7~~ 8 – Loss of Condenser						CT2		~~E~~ S	**NRC**: • Flag CT performance steps in the D2. **Fermi Response**:

Pumps and HPCI/RCIC Auto Start Failure									• CT summary added at performance steps to flag CT for examine during evaluation.
~~7~~ 8	0	0	0		2	2	~~6~~ 7	~~E~~ S	

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, preidentified 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: FERMI NUCLEAR POWER STATION									Exam Date: June 17 – 28, 2019
Scenario	1 Event Totals	2 Events Unsat.	3 TS Total	4 TS Unsat.	5 CT Total	6 CT Unsat.	7 % Unsat. Scenario Elements	8 U/E/S	11 Explanation
1	9	0	3	0	2	0	0	~~E~~ S	
2	10	0	3	0	2	0	0	~~E~~ S	
3	8	0	2	0	~~2~~ 3	0	0	~~E~~ S	
4									***NOTE:*** *Scenario 4 will NOT be used on the 2019 Fermi Exam due to a reduction in the class size from 18 to 15 applicants, requiring 6 (includes the Spare) instead of the 7 scenarios initially planned.*
5	~~9~~ 7	~~2~~ 0	~~1~~ 2	~~1~~ 0	2	0	~~25~~ 0	~~U~~ S	**Explanation**: • "1" is recorded in Column 4 ("TS Unsat") to reflect the fact that the two event TS minimum has not been met for Scenario 5. Scenario evaluated as Unsatisfactory (25%) using the calculation for ***"Percentage of Unsatisfactory Scenario Elements"*** from Item 7 below, the basis of which is two "Unsat" Events (7 & 9) for the ATC position and less than the required minimum two TS Events per scenario. Scenario is UNSAT. **Explanation Update**: • Scenario 5 underwent a major rewrite. Events 2, 3, and 6 were replaced to ensure compliance with the NUREG for I/C & TS scenario event totals and "Verifiable Actions." Event 4 Power Reduction was moved to Event 2 to enhance the flow of the scenario. Replaced the Event 3 Stabilizing Valve Failure with the CST level Inst Failure from Scenario 4, which also doubles as a TS event for the SRO. Inserted a trip of A CRD Pump into Event 4 for the ATC. I/C & TS totals changed as follows: TS number is now 2 instead of 1. BOP I/C events reduced from 3 to 2. Total number of Scenario 5 events reduced from 9 to 7. A recalculation of ES-301-5 totals shows all candidates with a minimum of 5 I/C events for the required 4, and all SROs well over the 2 TS minimum. Revised Scenario 5 validated successfully during OV week. RevisedScenario 5 determined to be Satisfactory by the Chief Examiner.
6									
7	~~7~~ 8	0	2	0	2	0	0	~~E~~ S	

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. Events. 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. TS. 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. CT. Check that a scenario includes at least two preidentified 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: $\left(\frac{2+4+6}{1+3+5}\right)100\%$

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: FERMI NUCLEAR POWER STATION **Exam Date: June 17 – 28, 2019**

OPERATING TEST TOTALS

	Total	Total Unsat.	Total Edits	Total Sat.	% Unsat.	Explanation
Admin. JPMs	9	1	5	3		RO Equipment Control Admin JPM evaluated as Unsatisfactory for LOD=1.
Sim/In-Plant JPMs	11	0	4	7		
Scenarios	7	1	6	0		Scenario 5 evaluated as Unsatisfactory (25%) using the calculation for ***"Percentage of Unsatisfactory Scenario Elements,"*** the basis of which is two "Unsat" Events (7 & 9) for the ATC position and less than the required minimum two TS Events per scenario.
Op. Test Totals:	27	2	9	16	7.4%	

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).