SRO ADMIN JPM 5, EMERGENCY CLASSIFICATION – COMPLETE NMP-EP-142-F01

UNIT 1 & 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. You are the On Shift Shift Manager.
2. Unit 2 is in a LOSP due to a failure of the "2C", "2D" and "2E" SUTs and a Loss of all onsite Emergency AC power due to a failure of all three Emergency Diesel Generators to start.
3. The Reactor scrammed and All rods fully inserted on the scram signal.
4. For the last 16 minutes, Emergency Diesel Generator start attempts have not been successful on any Emergency Diesel.
5. Maintenance estimates that the "2A" Emergency Diesel can be returned to service in 1 hour.
6. RWL is at -30 inches and being restored to the normal band using HPCI and RCIC.
7. All other Unit 2 parameters are in the desired bands.
8. Current meteorological conditions available on SPDS MEDAS Information provided
9. The following Unit 1 conditions exists:
   100% power
   All parameters normal
10. NO Peer Check is available.

INITIATING CUES:

EXAM SECURITY CAUTION
Do Not Make Any Verbal Crew Announcements During This JPM

1. Evaluate the current conditions and determine the EAL identifier. IMMEDIATELY raise your hand so the evaluator proctor can log your determination and time of determination. (TIME CRITICAL)

2. AFTER the evaluator proctor has logged your determination, complete the WebEOC NMP-EP-142 Form 1, ENF. IMMEDIATELY raise your hand to the evaluator proctor can take your paperwork and log your time. (TIME CRITICAL)

Current time is: _____

Facility Comment: IAW NMP-EP-142-F01, Emergency Notification Form (ENF), Step 12, the "UNIT STATUS: ☒ U2 Shutdown at time _____ "is required to be the actual time the Unit 2 was shut down. Per the answer key and the performance standard for JPM step 34 (critical step) U2 Shutdown time was the start time of the JPM. Initial condition 4 states "For the last 16 minutes, Emergency Diesel Generator start attempts have not been successful on any Emergency Diesel." Initial condition 4 indirectly determines the U2 Shutdown time to be the time required to perform RC-1 & RC-2 actions (actual times may vary), plus an additional 16 minutes from the start time of the JPM. Therefore, the answer key and the performance standard for JPM step 34 are undefinable. This will make JPM step 34 "not critical" due to lack of accurate Initial Condition information.

NMP-EP-142-F01

12. UNIT STATUS: (Unaffected Unit(s) Status Not Required for Initial Notifications)	[A] U1 100 % Power	Shutdown at Time N/A Date N/A
	[B] U2 0 % Power	Shutdown at Time START TIME Date 08 / XX / 2019

SRO ADMIN JPM 5, EMERGENCY CLASSIFICATION – COMPLETE NMP-EP-142-F01

**34.	NMP-EP-142-F01, step 12 Enter Unit Status: ********** ********** ********** ********** U2 Shutdown Time **********	NMP-EP-142-F01, step 12 The operator has entered the JPM start time in the space provided for U2 Shutdown Time.

Facility Recommendation: Change the answer key and the performance standard for JPM step 34, U2 Shutdown time, to not be a Critical Step due to insufficient information provided as part of the Initial Conditions such that the U2 Shutdown time would be the Start Time of the JPM.
NUREG-1021 Appendix C Job Performance Measure Guidelines.
B. Developing and Reviewing JPMs which states:

1. Specify Initial Conditions
   Determine those system and plant conditions that would permit the task to be performed realistically. They should provide **sufficient information about the status of the plant** and system to facilitate task performance, without coaching the examinee.

3. Develop Performance Criteria
   The JPM should have meaningful performance requirements that will provide a legitimate basis for evaluating the examinee's ability to safely operate the system or the plant.

SRO ADMIN JPM 2, CONDUCT OF OPERATIONS, 34SV-SUV-019-2 SURVEILLANCE & TECH SPEC REQUIRED ACTIONS

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. Unit 2 is operating at 100 % RTP.
2. 2T48-N303A, Torus Temperature, is out of service and inoperable.
3. 2T48-N308A, Torus Temperature, is out of service and inoperable.
4. 2T48-R647, Torus Bulk Average Temperature, on 2H11-P689 panel is indicating 95.0°F.
5. The Shift Supervisor has directed this surveillance to be completed as a paper version.
6. Attachment 1, Unit 2 SPDS Torus Water Temperature Diagnostic
7. Attachment 2, 2T47-R626 and 2T47-R627 Temperature Recorders

INITIATING CUES:

Complete section 7.4 of 34SV-SUV-019-2, SURVEILLANCE CHECKS, which evaluates Torus temperatures,

AND

Determine & Inform the evaluator of Bulk Average Torus Temperature

AND

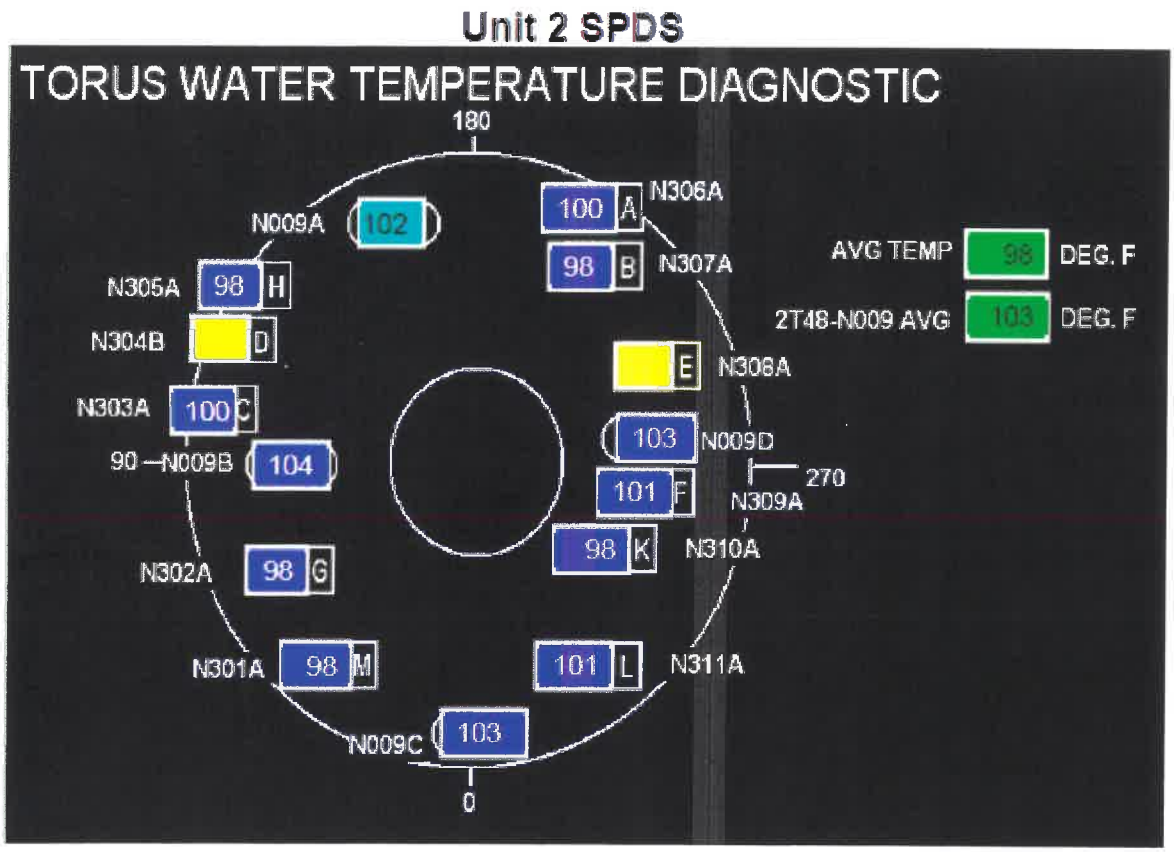
Determine and inform the evaluator whether the bulk average torus temperature LCO is / is not met. If LCO not met determine any Technical Specification required actions with regards to Torus Temeperature.

Facility Comment: Initiating Condition 2, "2T48-N303A, Torus Temperature, is out of service and inoperable" has a typographical error and should be "2T48-N304A, Torus Temperature, is out of service and inoperable." The typographical error resulted in the initiating conditions not matching the information on Attachment 1, TORUS WATER TEMPERATURE DIAGNOSTIC Unit 2 SPDS screen with 2T48-N303A indicating 100°F.

INITIAL CONDITIONS:

2. 2T48-N303A, Torus Temperature, is out of service and inoperable.

Attachment 1



Facility Recommendation: Revise the JPM steps 6, 8, 10, 12, 13 performance standard to address either two or three inoperable Torus Temperature instruments to allow it to be successfully performed with either two or three failed Torus Temperature instrument due to the discrepancy between the Initial Condition 2, "2T48-N303A, Torus Temperature, is out of service and inoperable" and the evaluated provided Attachment 1, TORUS WATER TEMPERATURE DIAGNOSTIC Unit 2 SPDS screen with 2T48-N303A indicating 100°F.

NUREG-1021 Appendix C Job Performance Measure Guidelines.
B. Developing and Reviewing JPMs which states:

1. Specify Initial Conditions
   Determine those system and plant conditions that would permit the task to be performed realistically. They should provide sufficient information about the status of the plant and system to facilitate task performance, without coaching the examinee.

JPM Recommended revisions:

6.	Performs step 7.4.6 of 34SV-SUV-019-2.	From the SPDS screen provided, the operator lists the temperature readings on the surveillance sheet with NO errors for; 2T48-N301A 98°F 2T48-N302A 98°F 2T48-N303A 100°F OR 100°F INOP (SPDS) 2T48-N304B INOP 2T48-N305A 98°F 2T48-N306A 100°F 2T48-N307A 98°F 2T48-N308A INOP 2T48-N309A 101°F 2T48-N310A 98°F 2T48-N311A 101°F	

**8.	Performs step 7.4.8 of 34SV-SUV-019-2.	The operator calculates the readings in step 7.4.6 and determines; For 2 INOP instruments, the N301-N311 average is 99.1ºF (± 1°F for rounding).	
		For 3 INOP instruments, the N301-N311 average is 99.0°F (± 1°F for rounding).	

10.	Performs step 7.4.10 of 34SV-SUV-019-2.	For 2 INOP instruments; From the SPDS screen provided, the operator records SPDS Average Torus water temperature reading of 98°F.	
		For 3 INOP instruments; Enters an '**UNSAT**' or "**INOP**" due to less than 9 items in step 7.4.6 being operable.	

****12.**	Performs step 7.4.12 of 34SV-SUV-019-2.	The operator calculates the Bulk Average Torus temperature using the bottom formula (**since 2T48-R647 is inop**) to be; For 2 INOP instruments, **101.06°F**. (Accept ± 1°F due to rounding errors)	
		For 3 INOP instruments, **103.5°F** (Accept ± 1°F for rounding errors). This includes 5°F correction factor from Attachment 2.	

13.	Performs step 7.4.13 of 34SV-SUV-019-2.	The operator evaluates the temperature difference from steps 7.4.10 & 7.4.12 and determines; For 2 INOP instruments, >2ºF AND enters an "UNSAT" per NOTE 'B'.	
		For 3 INOP instruments, comparison not available due to only 8 operable instruments AND enters an "UNSAT" per NOTE 'B'.	

SRO Question 93

ILT-12 NRC Exam (SRO)

93. 400000A2.03 001

Unit 2 is at 30% RTP during a startup after an extended outage when the following alarm is received:

RBCCW HX OUTLET TEMP HIGH (650-249)

The control room operator dispatches the Systems Operator to adjust Plant Service Water flow through the heat exchanger.

Based on the above conditions, which ONE of the choices below completes both statements?

The result of locally adjusting Plant Service Water flow is a _____ .

34AR-650-249-2 _____ contain a specific step that provides the direct guidance for adjusting the Plant Service Water valve.

A. reduced PSW to RBCCW differential pressure;
does

B. reduced PSW to RBCCW differential pressure;
does NOT

C. raised PSW to RBCCW differential pressure;
does

D. raised PSW to RBCCW differential pressure;
does NOT

Answer is KEYED for (A)

References:

- 34SO-P41-001-2, Plant Service Water System, Ver. 27.7
- 34SO-P42-001-2, Reactor Building Closed Cooling Water System, Ver. 18.0
- 34AR-650-249-2, RBCCW HX OUTLET TEMP HIGH, Ver. 4.1

Applicant Comment (Docket Numbers: 55-73494, 55-24347, 55-71121, 55-73574, 55-73571):
IAW 34SO-P41-001-2, Plant Service Water System, Step 7.1.2.18 OR Step 7.1.3.18, the valve that is adjusted in the first question is 2P41-F491, PSW Outlet From The RBCCW HX. This valve is a common valve downstream of the outlet valves (2P41-F440A/B) of both A and B RBCCW Hx. Opening this valve will raise the PSW flow through the in-service RBCCW Hx and reduce the PSW/RBCCW differential pressure.

The second part of this question is asking if 34AR-650-249-2 contains a specific step that provides the direct guidance for adjusting the PSW valve (2P41-F491). This ARP directs throttling open 2P41-F440A(B), RBCCW Hx Outlet valves depending upon which RBCCW Hx is in service and based on 34SO-P42-001-2, Reactor Building Closed Cooling Water System, these valves are already fully open for the in-service Hx (**new technical information**). Therefore, the valve operation is per the 34SO-P41-001-2, Plant Service Water System procedure either Step 7.1.2.18 OR Step 7.1.3.18 and not per 34AR-650-249-2.

34SO-P41-001-2, Plant Service Water System,

7.1.2.18 IF necessary,
throttle 2P41-F491, PSW return valve from the RBCCW Hx,
to maintain Hx, PSW/RBCCW Diff pressure AND
RBCCW Hx outlet temperature WITHIN limits. ☐

OR

7.1.3.18 IF necessary,
throttle 2P41-F491, PSW Return Valve from the RBCCW Hx,
to maintain Hx PSW/RBCCW Diff Pressure and RBCCW Hx outlet temperature WITHIN limits. ☐

ATTACHMENT 2 | ATTACHMENT PAGE: 30 OF 47
TITLE: PLANT SERVICE WATER SYSTEM VALVE LINEUP

VALVE NUMBER	DESCRIPTION	NORMAL POSITION	CHECKED
2P41-F440A	PSW Return from RBCCW Heat Exchanger, 2P42-B001A, Isolation Valve	OPEN	
2P41-F440B	PSW Return from RBCCW Heat Exchanger, 2P42-B001B, Isolation Valve	OPEN	

Applicants Recommendation: Change answer from (A) to (B).

Facility position on Applicant comments: The facility licensee concurs with applicant's comment and recommendation. Recommend changing answer from (A) to (B) based on discovery of **new technical information** due to the 3rd bullet of NUREG-1021 ES-403 D.1.b which states:

> "Despite the extensive reviews performed by both the NRC and the facility licensee before examination administration (refer to ES-201, Attachment 5), it is possible that a few isolated errors may be discovered only after an examination has been administered. The following types of errors, if identified and adequately justified by the facility licensee or an applicant, are most likely to result in post-examination changes agreeable to the NRC:
>
> - a question with an unclear stem that confused the applicants or did not provide all the necessary information
> - unintended typographical errors in a question or on the answer key
> - **newly discovered technical information that supports a change in the answer key**
> - a question that is at the wrong license level (RO versus SRO) or not linked to job requirements"

1.0 IDENTIFICATION:

ALARM PANEL 650-2

RBCCW HX

OUTLET TEMP

HIGH

DEVICE: 2P42-R600

SETPOINT: 100°F

2.0 CONDITION:
RBCCW temperature out of the RBCCW Heat Exchanger is greater than 100°F

3.0 CLASSIFICATION:
EQUIPMENT STATUS

4.0 LOCATION:
2H11-P650 Panel 650-2

5.0 OPERATOR ACTIONS:

5.1 On panel 2H11-P650, confirm 2P42-R600, RBCCW Pump Suct Temp, indicates > 100°F. ☐

5.2 THROTTLE OPEN 2P41-F440A(2P41-F440B), RBCCW HX Serv Water Disch Vlv, to decrease RBCCW HX outlet temperature as indicated locally on 2P42-R033. ☐

5.3 IF further cooling is required,
PLACE the standby heat exchanger in service per 34SO-P42-001-2, RBCCW System. ☐

5.4 IF blowing down Reactor Water Cleanup to Radwaste or the Main Condenser AND
IF desired, reduce the blowdown rate per 34SO-G31-003-2, Reactor Water Cleanup System. ☐

5.5 IF desired,
cross-connect Unit 1 and Unit 2 Fuel Pooling Cooling Systems per 34SO-G41-003-2 Fuel Pool Cooling AND Cleanup System, ☐
OR
PLACE RHR in Fuel Pool Cooling Assist per 34SO-E11-010-2, Residual Heat Removal System. ☐

6.0 CAUSES:

6.1 Insufficient service water flow
6.2 High service water temperature
6.3 High heat load

7.0 REFERENCES

7.1 H-27750, RBCCW System 2P42 Elementary Diag
7.2 H-26054, RBCCW System
7.3 H-21035, Turbine Building Service Water System
7.4 57CP-CAL-092-2, Sigma Indicators

8.0 TECH. SPECS./TRM/ODCM/FHA:

None

34AR-650-249-2
Ver 4.1

7.1.2 **Initial Division 1 Pump Startup**

CONTINUOUS

NOTE:	This procedure is designed to place 2P41-C001A in Division 1 in service. In order to place 2P41-C001C in service, use this procedure AND substitute the appropriate letter OR component designation indicated in parentheses.

7.1.2.1 **Check** there is Instrument Air pressure indicated on 2P41-F320A (2P41-F320C), Minimum Flow Valve Controller, at the Intake Structure. ☐

7.1.2.2 **Crack open** 2P41-F301A (2P41-F301C), PSW Pump 2A (2C) Discharge Valve. ☐

NOTES:	• Normal cooling for the Plant Service Water Pumps is supplied from a line off the PSW header downstream of the strainers. • IF cooling water was swapped to Division II during performance of Section 7.2.2, Shutting Down One Division of Plant Service Water, • THEN cooling water must be realigned to Division I PSW before PSW can be declared Operable. • Steps for realigning cooling water, IF necessary, are addressed later in this section after starting the first PSW pump.

CAUTION:	IF EXCESSIVE NOISE OR VIBRATION OF THE PUMP IS OBSERVED, THE PUMP MUST BE TRIPPED IMMEDIATELY AND THE CAUSE DETERMINED AND CORRECTED BEFORE THE PUMP IS RESTARTED.

7.1.2.3 IF Circulating Water Flume is NOT in Level Control, **perform** the following:

7.1.2.3.1 At 2R25-S040, 120/208 V Dist. Panel, **close** breaker 12, 2N71-F012, Circ. Water Makeup. ☐

7.1.2.3.2 At 2R25-S021, 120/208 V Dist. Panel 2A, **close** breaker 36, 2N71-F013, Service Water Blow Down. ☐

7.1.2.3.3 IF Circulating Water Flume is ready to receive water, at 2H11-P700:

7.1.2.3.3.1 **Fully open** 2N71-F012, Circ Water Makeup Valve, AND ☐

7.1.2.3.3.2 **Ensure closed** 2N71-F013, Service Water Blowdown valve. ☐

CAUTION:	2N71-F013, PSW BLOWDOWN VALVE, WILL NOT BE OPENED WITHOUT CONTACTING THE CHEMISTRY FOREMAN TO INSURE PSW CHLORINATION IS NOT IN PROGRESS. THIS IS TO ENSURE SAMPLING IS IMPLEMENTED BY CHEMISTRY IF REQUIRED.

7.1.2.3.4 IF the Circulating Water Flume is NOT available to receive Plant Service Water discharge flow, at 2H11-P700:

7.1.2.3.4.1 **Fully open**, 2N71-F013, Service Water Blowdown valve. ☐

7.1.2.3.4.2 THEN **Ensure closed** 2N71-F012, Circ Water Makeup valve. ☐

NOTES:	• When a PSW pump is started, the intake suction bay level can be expected to drop. The requirements of Tech Spec 3.7.2 must be complied with. • Turbine deck personnel in the vicinity of the Main Generator Hydrogen Coolers must be advised prior to the initial start of Plant Service Water Pumps evolutions in order to communicate the potential danger and clear the area of personnel and equipment. This is due to the potential lifting of the PSW air release valves for the hydrogen coolers.

7.1.2.4 **Send** a Systems Operator to Main Turbine Deck the clear the area of personnel and equipment around the Main Generator prior to pump start of 2P41-C001A or 2P41-C001C, PSW Pump 2A (2C). ☐

7.1.2.5 **Start** 2P41-C001A or 2P41-C001C, PSW Pump 2A (2C), on panel 2H11-P650, **log** in the Control Room log. ☐

7.1.2.6 **Ensure** the levels in the pump lube oil reservoirs are in the normal operating range (upper AND lower reservoir). ☐

7.1.2.7 IF Motor cooling water is being supplied by Division II PSW pumps, THEN **return** cooling water to Division I by performing the following:

7.1.2.7.1 **Ensure locked open** 2P41-F307A, Div. I PSW pump Motor Cooling Isolation valve. ☐

7.1.2.7.2 **Close** 2P41-F925, Crosstie Valve between Div. 1 and Div. 2 Motor Cooling Water Supply to PSW and RHRSW pumps. ☐

7.1.2.7.3 **Close** 2P41-F926, Crosstie Valve between Div. 1 and Div. 2 Motor Cooling Water Supply to PSW and RHRSW pumps. ☐

7.1.2.8 While performing the following steps,
periodically monitor the upper bearing oil temperature
to check that it stabilizes at less than 165° F. ☐

7.1.2.9 WHEN directed by the SS,
remove the jumper(s) for the affected DG,
IF installed during removal of Div 1 PSW.

Diesel Generator	Panel	Remove jumper between links	
2A	2H11-P652	TB10-18 to TB10-14	☐
			IV ☐

CAUTIONS:
- IF INTAKE (PUMP WELL) LEVEL IS GREATER THAN OR EQUAL TO 61.2 FEET, LIMIT EACH PSW PUMP FLOW TO 8500 GPM.
- IF INTAKE (PUMP WELL) LEVEL IS LESS THAN 61.2 FEET, EACH PSW PUMP FLOW MUST BE LESS THAN 7000 GPM.

7.1.2.10 **Slowly throttle open** 2P41-F301A (2P41-F301C), PSW Pump 2A (2C) Discharge Valve,
to establish a flow ≥ 3000 gpm,
as indicated on 2P41-R311A (2P41-R311C), Service Water Pump 2A (2C) Discharge Flow Indicator (Intake Structure valve pit). ☐

7.1.2.11 **Ensure closed** 2P41-F320A (2P41-F320C),
Minimum Flow Bypass Valve. ☐

7.1.2.12 **Align** screen wash water to the Downstream Traveling Water Screen as follows:

7.1.2.12.1 **Open** 2P41-F1500A, Screen Wash Water From Unit 2 Div I Valve,
panel 2H11-P652. ☐

7.1.2.12.2 **Open** 1P41-F1500B, Screen Wash Water From Unit 1 Div II Valve,
panel 1H11-P652. ☐

7.1.2.13 IF Circulating Water flume is NOT in level control mode,
place the Circulating Water Flume level control system in operation
per 34SO-N71-001-2, Condenser Circulating Water System. ☐

7.1.2.14 WHEN 2N71-F013, Service Water Blowdown valve, is CLOSED
AND
2N71-F012, Circ Water Makeup valve, is throttled to control pressure in the Service Water header specified by the Shift Supervisor,
Ensure open the following breakers:

BREAKER	DISTRIBUTION CABINET	
36	2R25-S021	☐
12	2R25-S040	☐

7.1.2.15 **Place** 2P41-C001C (2P41-C001A), PSW Pump 2C (2A), (non-running pump) in Standby, IF desired, as follows:

7.1.2.15.1 **Fully open** AND **lock** 2P41-F301C (2P41-F301A), PSW Pump 2C (2A) Discharge Valve, handwheel. ☐

7.1.2.15.2 **Place** 2P41-C001C (2P41-C001A), PSW Pump 2C(2A), control switch in AUTO. ☐

NOTE:	Automatic operation of the PSW strainers is controlled by 2P41-N304A AND 2P41-N304B, Differential Pressure Switches. WHEN the dP across a strainer rises to 4 psid, the strainer backwash valve OPENS. The backwash valve Full Open limit switch starts the strainer drum rotating. The Strainer rotates for 6 minutes. At the end of 6 minutes, the strainer stops rotating AND the backwash MOV CLOSES.

7.1.2.16 IF Automatic PSW Strainer operation is causing excessive cycling of the PSW strainer backwash valves AND rotating motor,
place the strainer in the Remote Manual, Continuous Backwash Operation mode per the appropriate subsection of this procedure. ☐

7.1.2.17 IF Traveling Water Screens are NOT running,
start up per 34SO-W33-001-0, Traveling Water Screen and Intake Trash Rake Operation. ☐

7.1.2.18 IF necessary,
throttle 2P41-F491, PSW return valve from the RBCCW Hx,
to maintain Hx, PSW/RBCCW Diff pressure AND
RBCCW Hx outlet temperature WITHIN limits. ☐

7.1.2.19 Align the PSW cooling water supply to 1Z41-B008B, AHU,
per TRM Table T2.1-1. ☐

7.1.3 **Initial Division 2 Pump Startup**

CONTINUOUS

NOTE:	This procedure is designed to place 2P41-C001B in Division 2 in service. In order to place 2P41-C001D in service, use this procedure AND substitute the appropriate letter OR component designation indicated in parentheses.

7.1.3.1 At the Intake Structure,
ensure there is Instrument Air pressure
indicated on 2P41-F320B (2P41-F320D), Minimum Flow Valve controller. ☐

7.1.3.2 **Crack open** 2P41-F301B (2P41-F301D), PSW Pump 2B (2D) Discharge Valve. ☐

NOTE:	Normal cooling for the Plant Service Water Pumps is supplied from a line off the PSW header downstream of the strainers. IF cooling water was swapped to Division I during performance of Section 7.2.2, Shutting Down One Division of Plant Service Water, THEN cooling water must be realigned to Division II PSW before PSW can be declared OPERABLE. Steps for realigning cooling water, IF necessary, are addressed later in this section after starting the first PSW pump.

CAUTION:	IF EXCESSIVE NOISE OR VIBRATION OF THE PUMP IS OBSERVED, THE PUMP MUST BE TRIPPED IMMEDIATELY AND THE CAUSE DETERMINED AND CORRECTED BEFORE THE PUMP IS RESTARTED.

7.1.3.3 IF Circulating Water Flume is NOT in Level Control,
perform the following:

7.1.3.3.1 At 2R25-S040, 120/208 V Dist. Panel,
close breaker 12, 2N71-F012, Circ. Water Makeup. ☐

7.1.3.3.2 At 2R25-S021, 120/208 V Dist. Panel 2A,
close breaker 36, 2N71-F013, Service Water Blow Down. ☐

7.1.3.3.3 IF Circulating Water Flume is ready to receive water, at 2H11-P700:

7.1.3.3.3.1 **Fully open** 2N71-F012, Circ Water Makeup valve, AND ☐

7.1.3.3.3.2 **Ensure closed** 2N71-F013, Service Water Blowdown valve. ☐

CAUTION:	2N71-F013, PSW BLOWDOWN VALVE, WILL NOT BE OPENED WITHOUT CONTACTING THE CHEMISTRY FOREMAN TO INSURE PSW CHLORINATION IS NOT IN PROGRESS. THIS IS TO INSURE SAMPLING IS IMPLEMENTED BY CHEMISTRY IF REQUIRED.

7.1.3.3.4 IF the Circulating Water Flume is NOT available to receive Plant Service Water discharge flow, at 2H11-P700:

7.1.3.3.4.1 **Fully open** 2N71-F013, Service Water Blowdown valve, AND ☐

7.1.3.3.4.2 **Ensure closed** 2N71-F012, Circ Water Makeup. ☐

NOTES:	• When a PSW pump is started, the intake suction bay level can be expected to drop. The requirements of Tech Spec 3.7.2 must be complied with. • Turbine deck personnel in the vicinity of the Main Generator Hydrogen Coolers must be advised prior to the initial start of Plant Service Water Pumps evolutions in order to communicate the potential danger and clear the area of personnel and equipment. This is due to the potential lifting of the PSW air release valves for the hydrogen coolers.

7.1.3.4 **Send** a System Operator to Main Turbine Deck the clear the area of personnel and equipment around the Main Generator prior to start of 2P41-C001B or 2P41-C001D, PSW Pump 2B (2D). ☐

7.1.3.5 **Start** 2P41-C001B or 2P41-C001D, PSW Pump 2B (2D), panel 2H11-P650, **log** in the Control Room log. ☐

7.1.3.6 **Check** levels in the pump lube oil reservoirs are in the normal operating range (upper AND lower reservoir). ☐

7.1.3.7 IF Motor cooling water is being supplied by Division I PSW pumps, THEN **return** cooling water to Division II by performing the following:

7.1.3.7.1 **Ensure locked open** 2P41-F307B, Div. II PSW Pump Motor Cooling Isolation Valve. ☐

7.1.3.7.2 **Close** 2P41-F925, Crosstie Valve between Div. 1 and Div. 2 Motor Cooling Water Supply to PSW and RHRSW pumps. ☐

7.1.3.7.3 **Close** 2P41-F926, Crosstie Valve between Div. 1 and Div. 2 Motor Cooling Water Supply to PSW and RHRSW pumps. ☐

7.1.3.8 WHILE performing the following steps,
periodically monitor the upper bearing oil temperature
to check that it stabilizes at less than 165° F. ☐

7.1.3.9 WHEN directed by the Shift Supervisor,
remove the jumper(s) for the affected DG,
IF installed during removal of Div II PSW.

Diesel Generator	Panel	Remove jumper between links	
2C	2H11-P652	TB4-8 to TB4-5	☐
			IV ☐

CAUTIONS:
- IF INTAKE (PUMP WELL) LEVEL IS GREATER THAN OR EQUAL TO 61.2 FEET, LIMIT EACH PSW PUMP FLOW TO 8500 GPM.
- IF INTAKE (PUMP WELL) LEVEL IS LESS THAN 61.2 FEET, EACH PSW PUMP FLOW MUST BE LESS THAN 7000 GPM.

7.1.3.10 **Slowly throttle open** 2P41-F301B (2P41-F301D),
PSW Pump 2B (2D) Discharge Valve,
to establish a flow ≥ 3000 gpm,
as indicated on 2P41-R311B (2P41-R311D), Service Water Pump 2B (2D) Discharge Flow Indicator (Intake Structure valve pit). ☐

7.1.3.11 **Check** 2P41-F320B (2P41-F320D), Minimum Flow Bypass Valve, CLOSES. ☐

7.1.3.12 **Align** screen wash water to the Upstream Traveling Water Screen as follows:

7.1.3.12.1 **Open** 2P41-F1500B, Screenwash Water From Unit 2 Div. II Valve,
panel 2H11-P652. ☐

7.1.3.12.2 **Open** 1P41-F1500A, Screenwash Water From Unit 1 Div. I Valve,
panel 1H11-P652. ☐

7.1.3.13 IF Circulating Water flume is NOT in level control mode,
place the Circulating Water Flume level control system in operation
per 34SO-N71-001-2, Condenser Circulating Water System. ☐

7.1.3.14 WHEN 2N71-F013, Service Water Blowdown valve, is CLOSED
AND
2N71-F012, Circ Water Makeup valve, is throttled to control pressure in the service water header specified by the Shift Supervisor,
Ensure open the following breakers:

BREAKER	DISTRIBUTION CABINET	
36	2R25-S021	☐
12	2R25-S040	☐

7.1.3.15 **Place** 2P41-C001D or 2P41-C001B, PSW Pump 2D (2B), (non-running pump) in Standby, IF desired, as follows:

7.1.3.15.1 **Fully open** 2P41-F301D (2P41-F301B), PSW Pump 2D (2B) Discharge Valve AND **lock** handwheel in the OPEN position. ☐

7.1.3.15.2 **Place** 2P41-C001D (2P41-C001B), PSW Pump 2D (2B), control switch, in AUTO. ☐

NOTE:	Automatic operation of the PSW strainers is controlled by 2P41-N304A AND 2P41-N304B, Differential Pressure Switches. WHEN the dP across a strainer rises to 4 psid, the strainer backwash valve OPENS. The backwash valve Full Open limit switch starts the strainer drum rotating. The strainer rotates for 6 minutes. At the end of 6 minutes, the strainer stops rotating AND the backwash MOV CLOSES.

7.1.3.16 IF Automatic PSW Strainer operation is causing excessive cycling of the PSW strainer backwash valves AND rotating motor,
place the strainer in the Remote Manual, Continuous Backwash Operation mode per the appropriate subsection of this procedure. ☐

7.1.3.17 IF Traveling Water Screens are NOT running,
start up per 34SO-W33-001-0, Traveling Water Screen and Intake Trash Rake Operation. ☐

7.1.3.18 IF necessary,
throttle 2P41-F491, PSW Return Valve from the RBCCW Hx,
to maintain Hx PSW/RBCCW Diff Pressure and RBCCW Hx outlet temperature WITHIN limits. ☐

7.1.3.19 Ensure aligned the PSW cooling water supply to 1Z41-B008B, AHU, per TRM Table T2.1-1. ☐

VALVE NUMBER	DESCRIPTION	NORMAL POSITION	CHECKED
2P41-F493	PSW Supply to Water Analysis Room Sample Coolers Isolation Valve	OPEN	
2P41-FD087	PSW Supply Header Drain Valve	CLOSED	
2P41-FV081	PSW Return from Reactor Building Drain Valve	CLOSED	
2P41-F1189	PSW Supply to Feedwater Corrosion Product Sampler	OPEN	
2P41-F473	Feedwater Trace Metal Collector Supply	OPEN	
2P41-F439A	PSW Supply to RBCCW Heat Exchanger, 2P42-B001A, Isolation Valve	OPEN	
2P41-FD088	PSW Supply to RBCCW Heat Exchanger, 2P42-B001A, Drain Valve	CLOSED	
2P41-F886A	PSW Supply to RBCCW HX, 2P42-B001A, Pressure Indicator, 2P41-R371A, Root Valve	OPEN	
2P41-F491	PSW Return from RBCCW Heat Exchangers Isol. Valve	OPEN *	
2P41-F440B	PSW Return from RBCCW Heat Exchanger, 2P42-B001B, Isolation Valve	OPEN	
2P41-N328B-RV1	PSW Return from RBCCW HX, 2P42-B001B, Flow Test Tap, 2P41-N328B, Root Valve	CLOSED	
2P41-N328B-RV2	PSW Return from RBCCW HX, 2P42-B001B, Flow Test Tap, 2P41-N328B, Root Valve	CLOSED	
2P41-N328A-RV1	PSW Return from RBCCW HX, 2P42-B001A, Flow Test Tap, 2P41-N328A, Root Valve	CLOSED	
2P41-N328A-RV2	PSW Return from RBCCW HX, 2P42-B001A, Flow Test Tap, 2P41-N328A, Root Valve	CLOSED	
2P41-FV086	PSW Return from RBCCW Heat Exchanger, 2P42-B001B, Drain Valve	CLOSED	
2P41-F885B	PSW Return from RBCCW HX, 2P42-B001B, Pressure Indicator, 2P41-R373B, Root Valve	OPEN	
2P41-F439B	PSW Supply to RBCCW Heat Exchanger, 2P42-B001B, Isolation Valve	OPEN	
2P41-FD089	PSW Supply to RBCCW Heat Exchanger, 2P42-B001B, Drain Valve	CLOSED	
2P42-F3045A	PSW to RBCCW Differential Pressure Switch, 2P42-N065A, Root Valve	OPEN	
2P41-F886B	PSW Supply to RBCCW HX, 2P42-B001B, Pressure Indicator, 2P41-R371B, Root Valve	OPEN	

*** 2P41-F491 may be throttled to maintain PSW/RBCCW differential pressure acceptable**

VALVE NUMBER	DESCRIPTION	NORMAL POSITION	CHECKED
2P41-F440A	PSW Return from RBCCW Heat Exchanger, 2P42-B001A, Isolation Valve	OPEN	
2P42-F3045B	PSW to RBCCW Differential Pressure Switch, 2P42-N065B, Root Valve	OPEN	
2P41-F885A	PSW Return from RBCCW HX, 2P42-B001A, Pressure indicator, 2P41-R373A, Root Valve	OPEN	
2P41-FV085	PSW Return from RBCCW Heat Exchanger, 2P42-B001A, Vent Valve	CLOSED	
2P41-FV088	PSW Supply To RBCCW Heat Exchangers Vent Valve	CLOSED	
2P41-FV082	PSW Return from RBCCW Heat Exchangers Vent Valve	CLOSED	
Turbine Building 112' elevation - East Corridor			
2P41-F516	PSW Supply to Turbine Building Sample Panel, 2P33-B002, Isolation Valve	OPEN	
2P41-F515	PSW Supply to Turbine Building Sample Panel, 2P33-B021, Isolation Valve	OPEN	
2P41-FD109	PSW Supply to Turbine Building Sample Panel, 2P33-B021, Drain Valve	CLOSED	
2P41-F472	Service Connection (West Wall)	CLOSED	
2P41-F354	PSW Supply to Turbine Building Isolation Valve	OPEN	
2P41-F518	PSW Return from Turbine Building Sample Panel, 2P33-B002, Isolation Valve	OPEN	
2P41-F517	PSW Return from Turbine Building Sample Panel, 2P33-B021, Isolation Valve	OPEN	
2P41-F353	PSW Supply to Circ. Water Sys. Isolation Valve	OPEN	
2P41-F404	Service Water Supply to Radwaste Support Systems Isolation Valve	OPEN	
2P41-FD063	PSW Supply to Circ. Water Sys. Drain Valve	CLOSED	
2P41-FV061	PSW Supply to Turbine Building Drain Valve (15'above TB sumps, not visible from floor).	CLOSED	

SRO Question 78, 215003G2.1.23-001.

ILT-12 NRC Exam (SRO)

78. 215003G2.1.23 001

Unit 2 is in MODE 2 performing a Plant Startup IAW 34GO-OPS-001-2, Plant Startup.

Based on the above conditions, which ONE of the choices below completes the following statements?

IAW 34GO-OPS-001-2, the MINIMUM number of IRMs REQUIRED to be operable in Mode 2 is _____ .

IAW TS Bases 3.3.1.1, RPS Instrumentation, the bases for the IRM function is to ensure _____ .

A. 3 IRMs per RPS trip system;
peak fuel energy depositions are below the failure threshold

B. 3 IRMs per RPS trip system;
the MCPR SAFETY limit is not exceeded

C✔ 1 IRM channel in each core quadrant;
peak fuel energy depositions are below the failure threshold

D. 1 IRM channel in each core quadrant;
the MCPR SAFETY limit is not exceeded

Answer is KEYED for (C)

References:

- 34GO-OPS-001-2, PLANT STARTUP, Ver. 51.3

Applicant Comment (Docket Numbers: 55-73494, 55-73497, 55-24347, 55-71121, 55-73572, 55-73492): The question asks the minimum number of IRMs required to be operable during a reactor startup in Mode 2 IAW 34GO-OPS-001-2.

To select the "C" Answer (1 IRM channel in each core quadrant), IAW 34GO-OPS-001-2, the following steps must be met:

- 7.1.14.3.1 Assign a second Licensed Operator to verify compliance with the withdrawal sequence. This could not be assumed per Appendix "E" because assigning of a second Licensed Operator for this purpose is not a normal occurrence during a Plant Startup and the stem does not state a Licensed Operator is assigned for this purpose.
- 7.1.14.3.2 Check the RWM is operable. This could be assumed per Appendix "E" because the stem did not indicate otherwise.

Per Appendix "E" the applicant should not assume conditions that are not specified in the question unless they occur as a consequence of other conditions that are stated in the question.

34GO-OPS-001-2, Plant Startup:

#7.1.14.2	**Check** at least three IRM channels per RPS trip system are operable. (N/A IF < 3 IRM channels per trip system operable).	_____
#7.1.14.3	**Check** at least two IRM channels per RPS trip system are operable. (N/A IF 3 IRM channels per trip system are operable).	_____
#7.1.14.3.1	**Assign** a second Licensed Operator to verify compliance with the withdrawal sequence.	_____
#7.1.14.3.2	**Check** the RWM is operable.	_____
#7.1.14.3.3	**Check** one IRM channel in each quadrant of the core is OPERABLE.	_____

Applicants Recommendation: The question should be deleted because the stem does not provide all the necessary information to select the KEYED answer (C) without making assumptions about the presence of a second Licensed Operator.

Facility position on Applicant comments: The facility licensee concurs with applicant's comment and recommendation. Recommend deleting the question based on an **unclear stem that did not provide all the necessary information** due to 1st bullet of NUREG-1021 ES-403 D.1.b which states:

> "Despite the extensive reviews performed by both the NRC and the facility licensee before examination administration (refer to ES-201, Attachment 5), it is possible that a few isolated errors may be discovered only after an examination has been administered. The following types of errors, if identified and adequately justified by the facility licensee or an applicant, are most likely to result in post-examination changes agreeable to the NRC:
>
> - **a question with an unclear stem that confused the applicants or did not provide all the necessary information**
> - unintended typographical errors in a question or on the answer key
> - newly discovered technical information that supports a change in the answer key
> - a question that is at the wrong license level (RO versus SRO) or not linked to job requirements"