F. PRECAUTIONS:

1. Control rods should not be left inserted or withdrawn any longer than necessary since this may cause local peaking.

2. © Control rod motion has a direct and dramatic effect on core reactivity. Like all core reactivity additions, it must be performed in a conservative manner in strict compliance with this procedure. ©(W-2).

3. Stall Flows can only be obtained for control rods that are either full in (position 00) or full out (position 48).

4. Drive Water pressure may be reduced to as low as 200 psid as indicated on DRIVE WTR PRESS, DPI 2(3)-340-4 on Panel 902(3)-5 for known "fast notching" control rods to prevent double notching.

G. LIMITATIONS AND ACTIONS:

1. © Control rods are to be moved one notch from their CRSP Sequence position (initial position) to their exercise position (target position) and then returned to their CRSP sequence position (initial position).

2. When operating below 20% of rated power, control rod movement is restricted by the Rod Worth Minimizer and the requirement to follow the Low Power Setpoint Sequence guidelines. A QNE should be contacted for assistance.

3. At the discretion of the NSO and the Second Verifier, each control rod may be exercised more than once in order to ensure proper control rod operation and indication.

4. IF any control rod fails to move, THEN notify Unit Supervisor AND CRD System Engineer.

5. © IF a control rod drive fails to latch, THEN enter DOA 0300-05, Inoperable Or Failed Control Rod Drive. © (W-3)

6. IF a control rod is mispositioned or found mispositioned as defined in DGP 03-04, Control Rod Movements, THEN enter DOA 0300-12, Mispositioned Control Rods. © (W-4, W-5)

G. 7. Drive water pressure should be maintained at approximately 260 psid (250 to 280) as indicated on DRIVE WTR PRESS, DPI 2(3)-340-4 on Panel 902(3)-5. A higher pressure may be required for movement of some control rods. This condition could result in double notching of the control rod during movement.

8. The Second Verifier shall check off (✓) each control rod movement verification on the CRD Exercise Checklist and when required, record stall flows and drive water pressures on the Stall Flow Checklist.

9. Stall flows will be taken monthly or at frequency specified by the System Engineer. If the System Engineer waives stall flows for a given month then complete the EWCS pre-defined paperwork as if stall flows were completed. Enter "Waived by the System Engineer" in the "WORK PERFORMED" field.

H. ACCEPTANCE CRITERIA:

1. Weekly Requirement - A withdrawn control rod is considered OPERABLE when testing verifies the following conditions can be verified:

- The control rod can be moved a minimum of one notch.
- Indicated control rod position changes during rod movement.
- Fully withdrawn control rods do not go to the overtravel position.

2. Quarterly Requirement - Solenoid Valves 2(3)-0305-120, 2(3)-0305-121, 2(3)-0305-122, 2(3)-0305-123 and check valve 2(3)-0305-138 (all typical of 177) are considered OPERABLE by verification of satisfactory control rod operation.

I. PROCEDURE:

NOTE

Control rods moved as part of scheduled startups, shutdowns or scram testings may fulfill the Technical Specification Surveillance requirements for exercising per T/S 4.3.C, Control Rod Operability.

1. IF there are any inoperable control rods or if rods at 00 will not be exercised, THEN enter "N/A" in all the blanks on the CRD Exercise Checklist for those control rods.

2. IF the CRD Exercise Checklist indicates that stall flows and drive pressures are required, THEN enter "N/A" on the Stall Flow Checklist for all control rods with a position NOT at 00 OR 48.

3. IF stall flows and drive pressures are required, THEN place the Control Rod Drive Flow Controller FIC 2(3)-340-1 on Panel 902(3)-5 in MANUAL.

4. Obtain an edit of control rod positions using OD-7, option 2, if available.

NOTE

Control rods may be exercised in any order during performance of this surveillance. However, this surveillance is written to exercise rods at position "00", "48", then all others, to facilitate easier control rod manipulation and documentation.

CAUTION

Stall flows can only be obtained from control rods that are either at position 00 (full in) or position 48 (full out).

5. IF the control rod is at position 00, THEN exercise as follows:

   a. Withdraw control rod one notch.

(AC) b. Verify indicated control rod position changes during movement. (T/S 4.3.I.2)

I. 5. c. IF stall flows are NOT required, THEN:

(1) Insert control rod one notch.

(AC) (2) Verify indicated control rod position changes during movement. (T/S 4.3.I.2)

d. IF stall flows are required, THEN:

(1) Apply a continuous insert signal.

(AC) (2) Verify indicated control rod position changes during movement. (T/S 4.3.I.2)

(3) Observe stall flow reading on DRIVE WTR FLOW, FI 2(3)-340-8 on the 902(3)-5 Panel. Direct Second Verifier to record Stall Flow after it stabilizes on the Stall Flow Checklist.

(4) Direct Second Verifier to record MINIMUM Drive Wtr Press noted on DRIVE WTR PRESS, DPI 2(3)-340-4 on the 902(3)-5 Panel while drive water flowrate was stable on the Stall Flow Checklist.

(5) Remove continuous insert signal.

e. Check off (✓) control rod move on the CRD Exercise Checklist.

f. Repeat Steps I.5.a. through I.5.e. for remaining control rods at position 00.

6. IF the selected control rod is at position 48, THEN exercise as follows:

a. Insert control rod one notch.

(AC) b. Verify indicated control rod position changes during movement. (T/S 4.3.I.2)

I. 6. c. While returning the control rod to position 48, PERFORM the following:

(1) Apply a continuous withdrawal signal utilizing the Rod Out Notch Override switch.

(AC) (2) Verify indicated control rod position changes during movement. (T/S 4.3.I.2)

(AC) (3) Verify the control rod does not go to the overtravel position. (T/S 4.3.H.2).

CAUTION
Charging water pressure should not be reduced to less than 1200 psig

(4) IF stall flows are required, THEN:

- Observe stall flow reading on DRIVE WTR FLOW FI 2(3)-340-8 on the 902(3)-5 Panel. IF stall flow is indicating offscale (high), THEN reduce drive water differential pressure as necessary until stall flow indication is on scale and stable.

- Direct Second Verifier to record Stall Flow after it stabilizes on the Stall Flow Checklist.

- Direct Second Verifier to record MINIMUM Drive Wtr Press noted on DRIVE WTR PRESS, DPI 2(3)-340-4 on the 902(3)-5 Panel WHILE drive water flowrate was stable on the Stall Flow Checklist.

(5) Remove continuous withdrawal signal.

(6) IF Drive Water Pressure was reduced, THEN return drive water differential pressure to ≈ 260 psid (250 to 280).

(7) Check off (✓) control rod move on the CRD Exercise Checklist.

I. 6. d. IF the selected control rod required >400 psid to withdraw to position 48, THEN flush seals as follows:

(1) Apply a continuous withdrawal signal utilizing the Rod Out Notch Override switch.

(2) Raise drive water pressure to approximately 500 psid as indicated on DRIVE WTR PRESS, DPI 2(3)-340-4 on Panel 902(3)-5 for one (1) minute.

(3) Remove continuous withdrawal signal.

(4) Return Drive Water Pressure to ≈ 260 psid (250 to 280).

CAUTION

Charging water pressure should not be reduced to less than 1200 psig

(5) Obtain and record stall flows as follows:

- Apply a continuous withdrawal signal utilizing the Rod Out Notch Override switch.
- Observe stall flow reading on DRIVE WTR FLOW FI 2(3)-340-8 on the 902(3)-5 Panel. IF stall flow is indicating offscale (high), THEN reduce drive water pressure as necessary until stall flow indication is on scale and stable.
- Direct Second Verifier to record Stall Flow after it stabilizes on the Stall Flow Checklist.
- Direct Second Verifier to record MINIMUM Drive Wtr Press noted on DRIVE WTR PRESS, DPI 2(3)-340-4 on the 902(3)-5 Panel WHILE drive water flowrate was stable on the Stall Flow Checklist.

e. Repeat Steps I.6.a. through I.6.d. for the remaining control rods at position 48.

I. 7. IF the selected control rod is at position other than 00 OR 48, THEN exercise as follows:

a. Insert control rod one notch.

(AC) b. Verify indicated control rod position changes during movement. (T/S 4.3.I.2)

c. Withdraw control rod one notch to its original in-sequence position.

d. Check off (✓) control rod move on the CRD Exercise Checklist.

e. REPEAT Steps I.7.a. through I.7.d. for remaining control rods NOT at position 00 or 48.

8. IF Control Rod Drive Flow Controller, FIC 2(3)-340-1 on Panel 902(3)-5 was placed in MANUAL for performance of this surveillance, THEN return controller to AUTO.

9. Place Rod Worth Minimizer in desired mode.

10. Log any abnormalities on DOS 0300-06, Control Rod Drive Abnormality Record.

(AC) 11. IF quarterly predefined is scheduled, THEN all control rods must be tested and verify the acceptance criteria for solenoid valves 2(3)-0305-120, 2(3)-0305-121, 2(3)-0305-122, 2(3)-0305-123 and check valve 2(3)-0305-38 per Step H.2 is satisfied.

12. Obtain an edit of control rod positions using OD-7, option 2, if available.

13. Compare the OD-7 edit obtained in Step I.13 to the OD-7 edit obtained in Step I.4., verify that all control rods are at their CRSP Sequence (initial) positions and initial appropriate box on the CRD Exercise Checklist.

14. Second Verifier compare the OD-7 edit obtained in Step I.13 to the OD-7 edit obtained in Step I.4, to verify that all control rods are at their CRSP Sequence (initial) positions and initial appropriate box on the CRD Exercise Checklist.

15. IF any control rod position discrepancies are discovered during OD-7 edits comparison, THEN enter DOA 0300-12, Mispositioned Control Rod.

I. 16. Unit Supervisor Independently perform the following:

a. Compare the OD-7 edit obtained in Step I.13 to the OD-7 edit obtained in Step I.4 and verify that all control rods are at their CRSP Sequence (initial) positions.

b. IF any control rod position discrepancies are discovered during OD-7 edits comparison, THEN enter DOA 0300-12, Mispositioned Control Rod.

c. Initial the CRD Exercise Checklist in the appropriate boxes.

J. DISCUSSION:

CRD HCU solenoid valves 2(3)-0305-120, 2(3)-0305-121, 2(3)-0305-122, 2(3)-0305-123 are not equipped with position indication or with an individual control switch. Per regulatory guidance regarding CRD system valve testing, normal rod motion and control rod scram testing per the Technical Specifications adequately demonstrates the operability of these valves. Abnormal control rod operation can also be indicative of reverse leakage past check valve 2(3)-0305-138.

W. WRITER'S REFERENCES:

1. Dresden Station IST Program.

2. DVR 12-2-91-29N, Control Rod Mispositioning During Stall Flow Testing Due to Personnel Error, NTS 237-200-91-02905.

3. SIL 139, Supplement 2, Control Rod Drive Collet Retainer Tube Cracking.

4. NTS 237-110-93-001H-01A.

5. NTS 237-110-93-001H-01C.

6. NTS 237-110-93-001H-01D.

7. NTS 237-180-96-01101A, IST Program Self Assessment.

8. NTS 237-200-95-23201

9. QCOS 0300-01, CRD Exercising.

10. SIL 310, Stuck CRD Collet.

CHECKLIST 1
CRD Exercise Checklist

Unit 2

CHECK ONE: ☐ DAILY ☑ WEEKLY

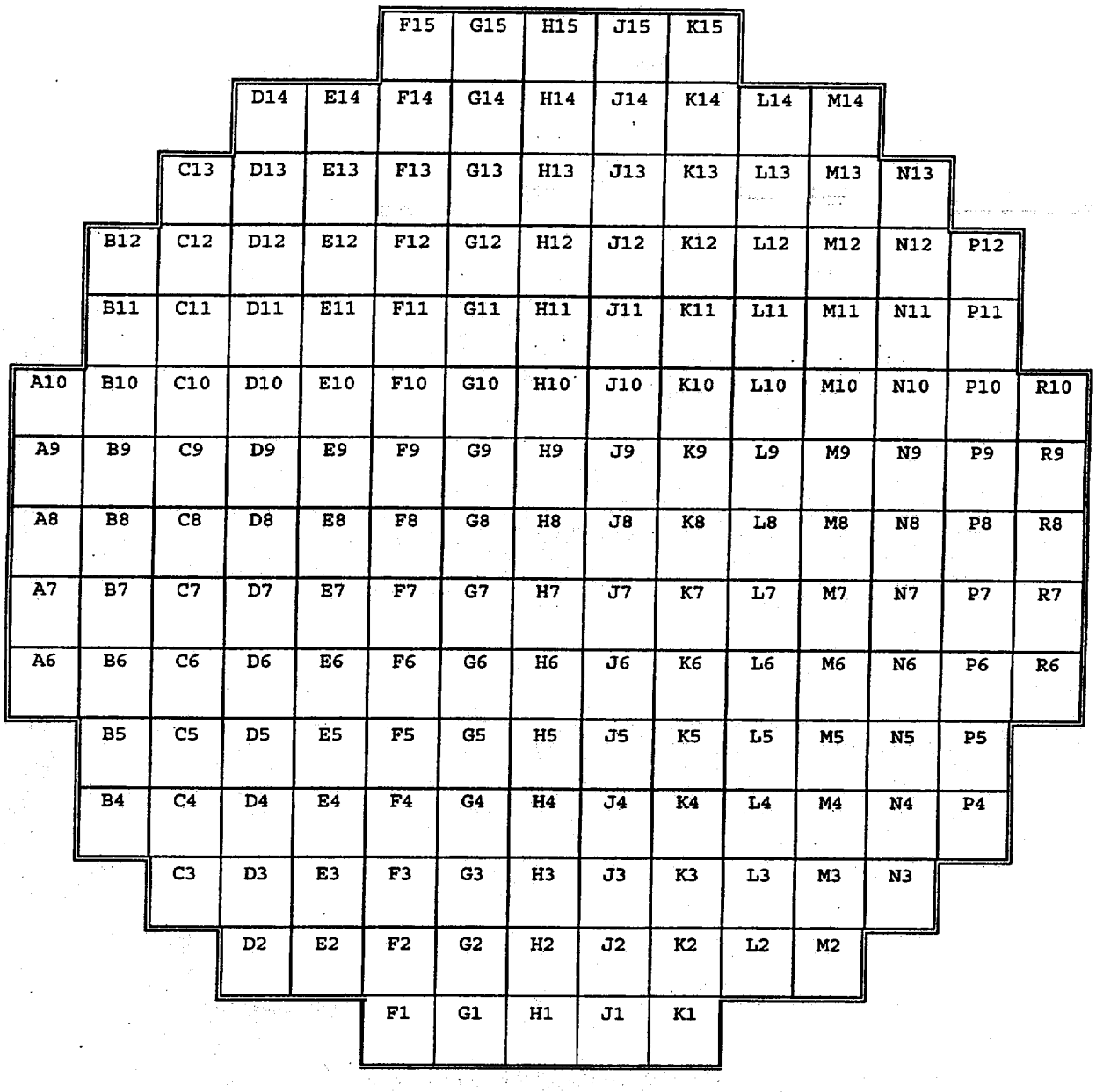
Stall Flows and Drive Water Pressures Required _____ Yes ✓ No

			F15	G15	H15	J15	K15					
		D14	E14	F14	G14	H14	J14	K14	L14	M14		
	C13	D13	E13	F13	G13	H13	J13	K13	L13	M13	N13	
B12	C12	D12	E12	F12	G12	H12	J12	K12	L12	M12	N12	P12
B11	C11	D11	E11	F11	G11	H11	J11	K11	L11	M11	N11	P11
A10	B10	C10	D10	E10	F10	G10	H10	J10	K10	L10	M10	N10	P10	R10
A9	B9	C9	D9	E9	F9	G9	H9	J9	K9	L9	M9	N9	P9	R9
A8	B8	C8	D8	E8	F8	G8	H8	J8	K8	L8	M8	N8	P8	R8
A7	B7	C7	D7	E7	F7	G7	H7	J7	K7	L7	M7	N7	P7	R7
A6	B6	C6	D6	E6	F6	G6	H6	J6	K6	L6	M6	N6	P6	R6
B5	C5	D5	E5	F5	G5	H5	J5	K5	L5	M5	N5	P5		
B4	C4	D4	E4	F4	G4	H4	J4	K4	L4	M4	N4	P4		
C3	D3	E3	F3	G3	H3	J3	K3	L3	M3	N3				
D2	E2	F2	G2	H2	J2	K2	L2	M2						
F1	G1	H1	J1	K1										

Requirement	Initials		
	NSO	Verifier	Unit Supervisor
CRD Exercise Complete			
OD-7 Comparison Complete			
All Control Rods at Initial Positions			

CHECKLIST 2
CRD STALL FLOW CHECKLIST

Unit _____



Record drive water pressure only if other than 260 psid.

Nuclear Generation Group

Job Performance Measure

Vent Scram Air Header to Insert Control Rods

JPM Number: B.2.a

Revision Number: 00

Date: 12/14/00

Author: _____ 12/14/00
Date

Facility Representative: _____ 12/15/00
Date

LICENSED OPERATOR REQUAL
JOB PERFORMANCE MEASURE
B.2.a Rev. 00 (12/00)

Examinee Information

Examinee's Name : _____ **Date :** _____

Time Started : _____ **Time Completed :** _____

Evaluator Name : _____

JPM Information

Standard [X] Faulted [ ] Alternate Path [ ] Time Critical [ ]

Task Title : Vent Scram Air Header to Insert Control Rods
Task Number: 295L106
Procedure : DEOP 0500-05 "Alternate Insertion of Control Rods"
Procedure Rev : 06

Task Standards : Vents Scram Air Header IAW DEOP 0500-05 by locally closing 2-301-109 valve, removing the pipe cap from the 2-0301-104 valve then opening the 2-0301-104 valve.

Validated Time : 15 minutes **Time Critical:** No

Evaluation Method : Simulate **Evaluation Location :** In-Plant

K & A Number : 201001A2.04 **K & A Rating :** 3.8 / 3.9

Exam Results

1. **Did the examinee complete all the critical steps?** **Yes** _____ **No** _____
2. **Was the JPM completed within the validated time?** **Yes** _____ **No** _____
3. **Did the examinee pass the JPM?** **Yes** _____ **No** _____
4. **Is remediation recommended (req'd. if # 3 marked No)** **Yes** _____ **No** _____
5. **List below any weaknesses noted :**

_____
_____
_____
_____
_____

6. **List below remediation recommended by the evaluator :**

_____
_____
_____

Revision Record (Summary)

Rev. 00 **Initial Issue**

Initial Conditions

None

Remotes/Alarms Required

None

Malfunction Required

None

Task Conditions (Read to Examinee)

An ATWS has occurred on Unit 2 and the Operating Team has been unable to insert Control Rods from the Control Room.

Initiating Cues (Read to Examinee)

1. You are the Unit 2 Aux NSO.
2. The Unit 2 Supervisor has directed you to vent the Unit 2 Scram Pilot Air Header in accordance with DEOP 500-05.
3. Notify the Unit 2 Supervisor when complete.

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
Note: Provide examinee a current copy of DEOP 0500-05.				
1. Obtains a pipe wrench for use in pipe cap removal.	Pipe wrench obtained from Control Room or other in-plant location.	____	____	____
Note: DEOP 0500-05 procedure NOTE (page 3 of 13) states "Equipment needed for these steps are located in the DEOP Equipment Storage Cabinet in the Control Room".				
CUE: When examinee demonstrates how the pipe wrench is obtained, cue "you have the pipe wrench."				
2. Proceeds to the Unit 2 CRD Flow Control Station Area.	LOCATES the Unit 2 CRD Flow Control Station Area.	____	____	____
* 3. Close manual valve 2-301-109, U2 SCRAM AIR HDR SUPPLY ISOL VLV.	Simulates closing 2-0301-109 valve by turning handwheel in clockwise direction until stopped.	____	____	____
CUE: The valve you operated is in the condition you described.				
* 4. Remove pipe cap from manual valve 2-0301-104, U2 SCRAM AIR HDR VENT VLV.	Simulates removing PIPE CAP from manual valve 2-0301-104 by turning with pipe wrench in counterclockwise direction until removed.	____	____	____
CUE: The cap you operated is in the condition you described.				
* 5. Open manual valve 2-0301-104, U2 SCRAM AIR HDR VENT VLV.	Simulates opening 2-0301-104 valve by turning handwheel in counterclockwise direction until stopped.	____	____	____
CUE: The valve you operated is in the condition you described. Then (if correct valve opened), there is a LOUD noise of air in the area.				

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
6. Notify Unit 2 Unit Supervisor that the Unit 2 Scram Pilot Air Header is vented.	Unit 2 Unit Supervisor notified by telephone or radio.	____	____	____
CUE: Acknowledge report.				
	END			

EXAMINEE COPY

Task Conditions

An ATWS has occurred on Unit 2 and the Operating Team has been unable to insert Control Rods from the Control Room.

Initiating Cues

1. You are the Unit 2 Aux NSO.
2. The Unit 2 Supervisor has directed you to vent the Unit 2 Scram Pilot Air Header in accordance with DEOP 500-05.
3. Notify the Unit 2 Supervisor when complete.

Nuclear Generation Group

Job Performance Measure

Locally configure AC/DC Buses

JPM Number: B.2.b

Revision Number: 00

Date: 12/14/00

Author: _____ 12/14/00
Date

Facility Representative: _____ 12/15/00
Date

LICENSED OPERATOR REQUAL
JOB PERFORMANCE MEASURE
B.2.b Rev. 00 (12/00)

Examinee Information

Examinee's Name : _____ **Date :** _____

Time Started : _____ **Time Completed :** _____

Evaluator Name : _____

JPM Information

Standard [x] Faulted [ ] Alternate Path [ ] Time Critical [ ]

Task Title : Locally Configure AC/DC Buses
Task Number: 295L139
Procedure : DSSP 100-CR Attachment D
Procedure Rev : 21

Task Standards : Configure Bus 23 for Safe Shutdown IAW DSSP 100-CR, Att. D.

Validated Time : 16 minutes **Time Critical:** No

Evaluation Method : Simulate **Evaluation Location :** In-Plant

K & A Number : 295016AA.1.07 **K & A Rating** 3.1 / 3.2

Exam Results

1. **Did the examinee complete all the critical steps?** **Yes** _____ **No** _____
2. **Was the JPM completed within the validated time?** **Yes** _____ **No** _____
3. **Did the examinee pass the JPM?** **Yes** _____ **No** _____
4. **Is remediation recommended (req'd. if # 3 marked No)** **Yes** _____ **No** _____
5. **List below any weaknesses noted :**

_____
_____
_____
_____
_____

6. **List below remediation recommended by the evaluator :**

_____
_____
_____

Revision Record (Summary)

Rev. 00, **Initial Issue**

Initial Conditions

None

Remotes/Alarms Required

None

Malfunction Required

None

Task Conditions (Read to Examinee)

Note: Prior to reading task conditions give the examinee a copy of DSSP 100-CR Attachment D and the attached copy of conditions and cues.

- A fire in the Aux Electric Room and Control Room has prompted a Control Room Evacuation.
- BOTH units have been scrammed and are being powered by Transformers 22 and 32.

Initiating Cues (Read to Examinee)

- You are the Unit 2 Aux NSO.
- The Unit 2 Supervisor has directed you to locally align Bus 23 per DSSP 100-CR Attachment D step 2.
- Inform the Unit 2 Supervisor when complete.

PERFORMANCE CHECKLIST	STANDARDS	SAT UNSAT N/A
Note: Disconnect Switch Box is NOT to be opened during the JPM.		
* 1. Open SAFE SHUTDOWN CONTROL ROOM DISCONNECT SWITCHES TS-23-1 at Bus 23 CUB 1, 2-302-2A, 2A CRD WATER PUMP.	At Bus 23 CUB 1, 2-302-2A, 2A CRD WATER PUMP. Moves TS 23-1 disconnect switches to Open (down) position.	___ ____ ____
Cue: The Disconnect switches you identified are in the position you described.		
* 2. Open SAFE SHUTDOWN CONTROL ROOM DISCONNECT SWITCHES TS-23-2 at Bus 23 CUB 2, 2-6723-1 BUS 23-1 FEED.	At Bus 23 CUB 2, 2-6723-1 BUS 23-1 FEED. Moves TS 23-2 disconnect switches to Open (down) position.	___ ____ ____
Cue: The Disconnect switches you identified are in the position you described.		
Note: Examinee may verify breakers in the tripped position and then pull the closing fuses OR pull the closing fuses immediately after verifying the breaker is in the tripped position.		
Note: **For the first breaker** the Examinee should explain how to determine breaker status. Then a cue will be given indicating the breaker is in the closed position. Examinee should then describe how the breaker would be placed in the Tripped position and identify that the closing fuses are to be pulled. Identification of the remaining breakers is sufficient if deemed appropriate by the evaluator.		

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
* 3. Verify 2-1501-44B, 2B CONTAINMENT COOLING SERVICE WATER Pump Breaker tripped (Cubicle 5).	Describes Tripped breaker indications At 2-1501-44B, 2B CONTAINMENT COOLING SERVICE WATER Pump Breaker verifies… - Only green light illuminated OR - Watt-Hr meter stopped OR - Merlin-Gerlin indicator flag Green with black O. - Close fuse pack is removed	____	____	____
Cue: 2B CONTAINMENT COOLING SERVICE WATER Pump Breaker Red light is illuminated, Watt-Hr meter is rotating, and Merlin-Gerlin indicator flag is Green with a Black 'C'				
* 4. Depress the Square Green Open button.	Depresses the Square Green Open button.	____	____	____
Cue: The button you have identified has been depressed. ***IF the correct button was identified THEN continue with this cue.*** - Only green light illuminated OR - Watt-Hr meter stopped OR - Merlin-Gerlin indicator flag Green with black O.				
* 5. Remove the Closing fuse pack.	Opens upper breaker door and removes the Closing fuse pack.	____	____	____
Cue: The identified fuse pack is in the condition you described.				

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
* 6. Verify 2-4401B, 2B CIRCULATING WATER PUMP Breaker tripped and pull CLOSE fuses (Cubicle 6).	Locates Cubicle 6, 2-4401B, 2B CIRCULATING WATER PUMP Breaker.	____	____	____
* 7. Verify 2-1501-44A, 2A CONTAINMENT COOLING SERVICE WATER PUMP Breaker tripped and pull CLOSE fuses (Cubicle 7).	Locates Cubicle 7, 2-1501-44A, 2A CONTAINMENT COOLING SERVICE WATER PUMP Breaker.	____	____	____
* 8. Verify 2-3302A/3401A, 2A CONDENSATE PUMP AND CONDENSATE BOOSTER PUMP breaker tripped and pull the CLOSE fuses (Cubicle 8).	Locates Cubicle 8, 2-3302A/3401A, 2A CONDENSATE PUMP AND CONDENSATE BOOSTER PUMP breaker.	____	____	____
* 9. Verify 2-3302B/3401B, 2B CONDENSATE PUMP AND CONDENSATE BOOSTER PUMP breaker tripped and pull the CLOSE fuses (Cubicle 10).	Locates Cubicle 10, 2-3302B/3401B, 2B CONDENSATE PUMP AND CONDENSATE BOOSTER PUMP breaker.	____	____	____
* 10. Verify 2-4401A, 2A CIRCULATING WATER PUMP breaker tripped and pull the CLOSE fuses (Cubicle 11).	Locates Cubicle 11, 2-4401A, 2A CIRCULATING WATER PUMP breaker.	____	____	____
* 11. Verify 2-7325, TURBINE BUILDING 480V SWGR 25 breaker tripped and pull the CLOSE fuses (Cubicle 13).	Locates Cubicle 13, 2-7325, TURBINE BUILDING 480V SWGR 25 breaker.	____	____	____
12. Verify 2-302-3A, 2A CRD WATER PUMP breaker (Cubicle 1) racked in.	Locates Cubicle 1 and verifies 2-302-3A, 2A CRD WATER PUMP breaker in cubicle.	____	____	____
Cue: The identified breaker is in the condition you described.				

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
13. Verify 2-6723-1, BUS 23-1 FEED (Cubicle 2) breaker closed.	Verifies 2-6723-1, BUS 23-1 FEED (Cubicle 2) breaker… - Red light illuminated	____	____	____
Cue: The identified breaker is in the condition you described.				
14. 14. Notify Unit Supervisor of Bus 23 status.	Using phone or radio NOTIFIES Unit Supervisor that Bus 23 is aligned per DSSP 100-CR Attachment D, step 2.	____	____	____
Cue: Acknowledge report.				
	END			

EXAMINEE COPY

Task Conditions

- A fire in the Aux Electric Room and Control Room has prompted a Control Room Evacuation.
- BOTH units have been scrammed and are being powered by Transformers 22 and 32.

Initiating Cues

- You are the Unit 2 Aux NSO.
- The Unit 2 Supervisor has directed you to locally align Bus 23 per DSSP 100-CR Attachment D step 2.
- Inform the Unit 2 Supervisor when complete.

Nuclear Generation Group

Job Performance Measure

Bypass RWCU Isolations

JPM Number: B.2.c

Revision Number: 00

Date: 12/14/00

Author: 12/14/00
Date

Facility Representative: 12/15/00
Date

LICENSED OPERATOR REQUAL
JOB PERFORMANCE MEASURE
B.2.c Rev. 00 (12/00)

Examinee Information

Examinee's Name : _____ **Date :** _____

Time Started : _____ **Time Completed :** _____

Evaluator Name : _____

JPM Information

Standard [✓] Faulted [ ] Alternate Path [ ] Time Critical [ ]

Task Title : Bypass RWCU Isolations
Task Number: 295L077
Procedure : DEOP 0500-02 "Bypassing Interlocks and Isolations"
Procedure Rev : 10

Task Standards : Install jumpers in back of 902-4 panel terminal block DD from point 12 to 24, terminal block LL point 12 to terminal block DD point 26 and terminal block DD point 20 to point 30.

Validated Time : 12 minutes **Time Critical:** No

Evaluation Method : Simulate **Evaluation Location :** In-Plant

K & A Number : 223002A4.03 **K & A Rating :** 3.6 / 3.5

Exam Results

1. **Did the examinee complete all the critical steps?** **Yes** _____ **No** _____
2. **Was the JPM completed within the validated time?** **Yes** _____ **No** _____
3. **Did the examinee pass the JPM?** **Yes** _____ **No** _____
4. **Is remediation recommended (req'd. if # 3 marked No)** **Yes** _____ **No** _____
5. **List below any weaknesses noted :**

_____
_____
_____
_____
_____

6. **List below remediation recommended by the evaluator :**

_____
_____
_____
_____

Revision Record (Summary)

Rev. 00, **Initial Issue**

Initial Conditions

None

Remotes/Alarms Required

None

Malfunction Required

None

Task Conditions (Read to Examinee)

NOTE: Prior to reading task conditions give examinee a copy of DEOP 0500-02 and the attached copy of conditions and cues.

- The Unit 2 Reactor Water Cleanup system has isolated on a Group III isolation and cannot be reset.
- The RWCU system is needed for pressure control in DEOP 100 and the isolation must be bypassed.

Initiating Cues (Read to Examinee)

- You are the Unit 2 Aux NSO.
- The Unit 2 Supervisor has directed you to bypass all RWCU isolations per DEOP 500-02, step G.6.
- Inform the Unit 2 Supervisor when complete.

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
Note: The DEOP Equipment Storage Cabinet key must be obtained from the Unit Supervisor. Be sure to Lock cabinet and return DEOP key to Unit Supervisor PRIOR to leaving the Control Room.				
* 1. Identifies appropriate Equipment Box from the Control Room DEOP Equipment Storage Cabinet.	Identifies appropriate EQUIPMENT BOX in the Control Room DEOP Equipment Storage Cabinet containing: ➢ Jumpers; ➢ Insulated Gloves.	____	____	____
CUE: The DEOP Equipment Box you have identified is in your hand.				
Note: Jumpers should be installed in order IAW Category 1 procedure usage.				
2. Proceeds to the area behind the 902(3)-4 panel in the Control Room and locates terminal block DD.	LOCATES terminal block DD behind the 902-4 panel.	____	____	____
Note: Examinee may make mention of extra care needed to place jumper due to distance between the two terminal points.	Insulated gloves in DEOP box should be used for steps 3, 5, and 6.			
* 3. Places a jumper on Terminal Block DD point 12 to point 24.	Jumper INSTALLED from Terminal Block DD point 12 to point 24.	____	____	____
Cue: The jumper is installed on the Terminal block(s) and points you have described.				
4. Locates terminal block LL.	Terminal block LL IDENTIFIED.	____	____	____

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
Note: Examinee may make mention of extra care needed to place jumper due to distance between the two terminal points. Examinee may mention using tie wraps and magnetic paper clips as necessary to secure the jumper.				
* 5. Places jumper on Terminal Block LL point 12 to DD point 26.	Jumper INSTALLED from Terminal Block LL point 12 to DD point 26.	_____	_____	_____
Cue: The jumper is installed on the Terminal Block(s) and points you described.				
* 6. Places jumper on Terminal Block DD point 20 to 30.	Jumper INSTALLED from Terminal Block DD point 20 to 30.	_____	_____	_____
Cue: The jumper is installed on the Terminal Block(s) and Points you described.				
7. Notifies Unit Supervisor that jumpers are in place to bypass all RWCU isolations IAW DEOP 500-02 step G.6.	Unit Supervisor NOTIFIED.	_____	_____	_____
Cue: Acknowledge the report.				
	END			

EXAMINEE COPY

Task Conditions

- The Unit 2 Reactor Water Cleanup system has isolated on a Group III isolation and cannot be reset.
- The RWCU system is needed for pressure control in DEOP 100 and the isolation must be bypassed.

Initiating Cues

- You are the Unit 2 Aux NSO.
- The Unit 2 Supervisor has directed you to bypass all RWCU isolations per DEOP 500-02, step G.6.
- Inform the Unit 2 Supervisor when complete.

INITIAL SUBMITTAL OF WALKTHROUGH JPMS

FOR THE DRESDEN INITIAL EXAMINATION THE WEEKS OF FEBRUARY 5 AND 12, 2001

Nuclear Generation Group

Job Performance Measure

Perform RPS Channels Automatic Scram Contactor Test

JPM Number: B.1.a

Revision Number: 00

Date: 12/06/00

Author: _____ 12/6/00
Date

Facility Representative: _____ 12/6/00
Date

LICENSED OPERATOR REQUAL
JOB PERFORMANCE MEASURE
B.1.a Rev. 00 (12/00)

Examinee Information

Examinee's Name : _____ **Date :** _____

Time Started : _____ **Time Completed :** _____

Evaluator Name : _____

JPM Information

Standard [ ] Faulted [X] Alternate Path [ ] Time Critical [ ]

Task Title : RPS Channels Automatic Scram Contactor Test
Task Number: 212L014
Procedure : DOS 0500-25
Procedure Rev : 04

Task Standards : Depress Manual Scram A pushbutton in response to a partial half scram in RPS channel A.

Validated Time : 17 minutes **Time Critical:** No

Evaluation Method : Perform **Evaluation Location :** Simulator

K & A Number : 212000A2.19 **K & A Rating :** 3.8 / 3.9

Exam Results

1. **Did the examinee complete all the critical steps?** **Yes** _____ **No** _____
2. **Was the JPM completed within the validated time?** **Yes** _____ **No** _____
3. **Did the examinee pass the JPM?** **Yes** _____ **No** _____
4. **Is remediation recommended (req'd. if # 3 marked No)** **Yes** _____ **No** _____
5. **List below any weaknesses noted :**

_____
_____
_____
_____

6. **List below remediation recommended by the evaluator :**

_____
_____
_____

Revision Record (Summary)

Rev. 00	**Initial Issue**

Initial Conditions

IC-12

Remotes/Alarms Required

None

Malfunction Required

B14 (Partial Half Scram RPS Channel A)

Task Conditions (Read to Examinee)

Note: Provide examinee with a marked up copy of DOS 0500-25 and with keys for Panel 902-15 and Panel 902-17 RPS Test Switches.

Unit 2 is operating at rated power.

Initiating Cues (Read to Examinee)

- You are the Unit 2 NSO.
- The Unit 2 Supervisor has directed you to perform DOS 0500-25, RPS Channels A1, A2, B1, and B2 Automatic Scram Contactor Test.
- No other testing is in progress.
- Scram fuse integrity in the 2202-22A through H panels has been verified.
- An alligator to alligator jumper for jumpering out a failed RPS Test Switch is available.

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
Note: The following steps 1 – 8 are for Channel A1.				
1. Verify Both RPS channels A AND B are reset and the attendant annunciators are reset.	Verifies at Panel 902-5 that RPS Channels A and B are reset and the attendant annunciators are reset.	____	____	____
* 2. Cycle RPS Test Switch A1 on Panel 902-15 to TRIP position, THEN place to NORMAL position.	RPS Test Switch A1 cycled to TRIP position, then placed in NORMAL position.	____	____	____
3. Verify all Scram Solenoid Groups A1 AND A4 AND Groups A2 AND A3 lights extinguish for Channel A on the vertical section of Panels 902-5 AND 902-15.	Verified all Scram Solenoid Groups A1 and A4 and Groups A2 and A3 lights extinguished for Channel A on the vertical section of Panels 902-5 and 902-15.	____	____	____
* 4. Reset the half scram.	Half scram reset.	____	____	____
5. Record N/A for Steps I.5 AND I.6 since the half scram reset.	N/A recorded for steps I.5 and I.6.	____	____	____
6. Verify all Scram Solenoid Group lights on Panels 902-5, 902-15, and 902-17 are illuminated.	All Scram Solenoid Group lights on Panels 902-5, 902-15, and 902-17 verified illuminated.	____	____	____
7. Verify Annunciator 902-5 D-10 is alarming.	Verified that Annunicator 902-5 D-10 is alarming.	____	____	____
8. Reset Annunciator 902-5 D-10, CHANNEL A RX SCRAM, on Panel 902-5.	Annunciator 902-5 D-10 reset.	____	____	____
Note: The following steps 9 – 11 are for Channel A2.				
9. Verify Both RPS channels A AND B are reset and the attendant annunciators are reset.	Verifies at Panel 902-5 that RPS Channels A and B are reset ant the attendant annunciators are reset.	____	____	____
* 10. Cycle RPS Test Switch A2 on Panel 902-15 to TRIP position, THEN place to NORMAL position.	RPS Test Switch A1 cycled to TRIP position, then placed in NORMAL position.	____	____	____

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
* 11. Observes that Scram Solenoid Groups A2 and A3 lights DID NOT extinguish for Channel A on the vertical section of Panels 902-5 and 902-15.	Observed that Scram Solenoid Groups A2 and A3 lights DID NOT extinguish.	____	____	____
12. Enters DOA 0500-02, Partial 1/2 or Full Scram Actuation.	DOA 0500-02 entered.	____	____	____
13. IF a Partial 1/2 Scram is received, THEN determine which RPS channel is affected using the SCRAM SOLENOIDS GROUP indicating lights on Panel 902-5 OR Panels 902-15 and 902-17.	Determines that RPS Channel A is affected using the SCRAM SOLENOIDS GROUP indicating lights on Panel 902-5 or Panel 902-15.	____	____	____
* 14. Depress the MANUAL SCRAM A pushbutton.	MANUAL SCRAM A pushbutton depressed.	____	____	____
15. Notify the Unit Supervisor of partial RPS channel A half scram.	Unit 2 Unit Supervisor notified.	____	____	____
CUE: Acknowledge report.				
	END			

EXAMINEE COPY

Task Conditions

- Unit 2 is operating at rated power.

Initiating Cues

- You are the Unit 2 NSO.
- The Unit 2 Supervisor has directed you to perform DOS 0500-25, RPS Channels A1, A2, B1, and B2 Automatic Scram Contactor Test.
- No other testing is in progress.
- Scram fuse integrity in the 2202-22A through H panels has been verified.
- An alligator to alligator jumper for jumpering out a failed RPS Test Switch is available.

CATEGORY 1

UNIT 2(3)
DOS 0500-25
REVISION 04

RPS CHANNELS A1, A2, B1, AND B2 AUTOMATIC SCRAM CONTACTOR TEST

REQUIREMENTS:

1. Technical Specifications:

INDEPENDENT TECHNICAL REVIEW

Disciplines Required:	NPPT	RO	RE/QNE	CH	RS	I&C	M&ES
	[X]	[X]	[ ]	[ ]	[ ]	[ ]	[X]

Unit 1 Review Required: [ ] YES [X] NO

Special Reviews: NONE.

PLANT OPERATIONS REVIEW COMMITTEE (PORC):

PORC REQUIRED [ ] YES [X] NO

APPROVAL AUTHORITY: Shift Operations Supervisor (SOS), or designee

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POST PERFORMANCE REVIEWS:

NONE.

N/A

RPS CHANNELS A1, A2, B1, AND B2 AUTOMATIC SCRAM CONTACTOR TEST

A. PURPOSE:

To test RPS Channels A1, A2, B1, and B2 automatic scram contactors.

B. USER REFERENCES:

1. Technical Specifications:

a. **CTS** Section 3.1.A, Reactor Protection System Instrumentation.

ITS 3.3.1.1, Reactor Protection System (RPS) Instrumentation

2. Technical Specification Surveillance Requirements

a. **CTS** Section 4.1.A.2, Reactor Protection System Logic System Functional Test.

ITS Supports SR 3.3.1.1.~~5~~18 (partial)

b. **ITS** Satisfies SR 3.3.1.1.5 for the following Table 3.3.1.1-1 Functions:

1. Intermediate Range Monitors.
   a. Neutron Flux - High.
   b. Inop.
2. Average Power Range Monitors.
   a. Neutron Flux - High Setdown.
   b. Flow Biased Neutron Flux - High.
   c. Fixed Neutron Flux - High.
   d. Inop
3. Reactor Vessel Steam Dome Pressure - High.
4. Reactor Vessel Water Level - Low
5. Main Steam Isolation Valve - Closure
6. Drywell Pressure - High
7. Scram Discharge Water Level - High
   a. Thermal Switch (U2) Float Switch (U3)
   b. Differential Pressure Switch
8. Turbine Stop Valve - Closure.
9. Turbine Control Valve Fast Closure, Oil Trip Pressure - Low
10. Turbine Condenser Vacuum - Low
11. Reactor Mode Switch - Shutdown Position.
12. Manual Scram

3. Prints:

a. 12E-2465, Sh. 1 thru 3 (12E-3465, Sh. 1 & 2), RPS Channel A Scram & Auxiliary Trip Relays.

b. 12E-2466, Sh. 1 thru 3 (12E-3466, Sh. 1 & 2), RPS Channel B Scram & Auxiliary Trip Relays.

c. 12E-2469, Sh. 2 (12E-3469), RPS Alarms & Computer Inputs.

C. SUPPLEMENTS:

NONE.

D. EQUIPMENT REQUIRED:

1. The following keys for Panel 902(3)-15 and Panel 902(3)-17 RPS Test Switches:

   a. Key for key lock #PA235 (Operations key number 197; IMD key number 50).

   b. Key for key lock #PA2235 (Operations key number 294; IMD key numbers 43, 44, 45, or 46).

2. One (1) alligator to alligator jumper (required for jumpering out a failed RPS Test Switch).

E. PREREQUISITES: Initials

1. No testing anticipated to cause a half-scram is in progress. U.S.

2. Visually verify scram fuse integrity in the 2202(3)-22A through H panels. U.S.

F. PRECAUTIONS:

1. During performance of this procedure, allow sufficient time (minimum of 10 seconds) between steps to allow the scram pilot solenoid valves to fully travel from one position to another.

2. Upon receipt of an RPS Half Scram, no control rod movement should occur.

G. LIMITATIONS AND ACTIONS:

1. Steps in this procedure are to be performed for each RPS Channel (A1, A2, B1, AND B2). The steps are to be performed in order, to completion, prior to proceeding on to testing the next RPS channel.

G. 2. IF an RPS Test Switch fails during testing of the associated channel, THEN an evaluation will be performed and the affected RPS Test Switch may be jumpered out to facilitate repairs.

H. ACCEPTANCE CRITERIA:

1. Steps in this procedure that satisfy Procedural Acceptance Criteria are annotated by the notation "(AC)" prior to the performance requirement.

2. After each RPS Test Switch for an RPS channel (A1, A2, B1, OR B2) is cycled through the TRIP position back to the NORMAL position, the system functions as outlined below:

   a. The Scram Solenoid Groups lights associated with the RPS channel being tested extinguish.

   b. Annunciator 902(3)-5 D-10 OR 902(3)-5 D-15, CHANNEL A(B) RX SCRAM, alarms.

3. IF the Acceptance Criteria are NOT met, THEN:

   a. Notify the Operations Shift Supervisor.

   b. Evaluate placing that channel in a tripped condition.

   c. Initiate repairs.

I. PROCEDURE:

	CHANNEL A1 INITIALS	CHANNEL A2 INITIALS
1. Verify Both RPS channels A AND B are reset and the attendant annunciators are reset.	_____	_____
2. Cycle RPS Test Switch A1 OR A2 on Panel902(3)-15 to TRIP position, THEN place to NORMAL position.	_____	_____
3. AC) Verify all Scram Solenoid Groups A1 AND A4 AND Groups A2 AND A3 lights extinguish for Channel A on the vertical section of Panels 902(3)-5 AND 902(3)-15.	_____	_____

4. Reset the half scram.

I.

		CHANNEL A1 INITIALS	CHANNEL A2 INITIALS
5.	IF the Channel A RPS Test Switch being tested has failed, the half scram will NOT reset, AND jumpering of failed RPS Test Switch is required, THEN perform the following at Panel 902(3)-15 (otherwise, record N/A for Steps I.5 AND I.6, THEN proceed to Step I.7):		
	a. Request Concurrent Verifier to witness, THEN install jumper across wired terminals at rear of failed RPS Test switch.		
	Verifier		
6.	IF the Channel A RPS Test Switch being tested was jumpered in Step I.5 AND the jumper now requires removal, THEN perform the following:		
	a. At Panel 902(3)-15, request Concurrent Verifier to witness, THEN remove jumper from across wired terminals at rear of affected RPS Test Switch.		
	Verifier		
	b. IF NOT reset, THEN reset the half scram.		
7.	Verify all Scram Solenoid Group lights on Panels 902(3)-5, 902(3)-15, AND 902(3)-17 are illuminated.		
8.	(AC) Verify Annunciator 902(3)-5 D-10 is alarming.		
9.	Reset Annunciator 902(3)-5 D-10, CHANNEL A RX SCRAM on Panel 902(3)-5.		
10.	Repeat Steps I.1 through I.9 as required for remaining Channel A1 OR A2 to be tested.		
11.	Wait approximately five minutes before continuing with Channel B testing.		

I.		CHANNEL B1 INITIALS	CHANNEL B2 INITIALS
12.	Verify Both RPS channels A AND B are reset and the attendant annunciators are reset.		
13.	Cycle RPS Test Switch B1 OR B2 on Panel 902(3)-17 to TRIP position, THEN place to NORMAL position.		
14.	(AC) Verify all Scram Solenoid Groups B1 AND B4 AND Groups B2 AND B3 lights extinguish for Channel B on the vertical section of Panels 902(3)-5 AND 902(3)-17.		
15.	Reset the half scram.		
16.	IF the Channel B RPS Test Switch being tested has failed, the half scram will NOT reset, AND jumpering of failed RPS Test Switch is required, THEN perform the following at Panel 902(3)-17 (otherwise, record N/A for Steps I.16 AND I.17, THEN proceed to Step I.18):		
	a. Request Concurrent Verifier to witness, THEN install jumper across wired terminals at rear of failed RPS Test Switch.		
	Verifier		
17.	IF the Channel B RPS Test Switch being tested was jumpered in Step I.16 AND the jumper now requires removal, THEN perform the following:		
	a. At Panel 902(3)-17, request Concurrent Verifier to witness, THEN remove jumper from across wired terminals at rear of affected RPS Test Switch.		
	Verifier		
	b. IF NOT reset, THEN reset the half scram.		
18.	Verify all Scram Solenoid Group lights on Panels 902(3)-5, 902(3)-15, AND 902(3)-17 are illuminated.		
19.	(AC) Verify Annunciator 902(3)-5 D-15 is alarming.		
20.	Reset Annunciator 902(3)-5 D-15, CHANNEL B RX SCRAM on Panel 902(3)-5.		

	CHANNEL B1 INITIALS	CHANNEL B2 INITIALS
21. Repeat Steps I.12 through I.20 as required for the remaining Channel B1 OR B2 to be tested.		

J. DISCUSSION:

Logic system functional testing of relays 590-108A through H is performed by DIS 0500-19. This eliminates the need to verify contacts in this surveillance. This procedure was created to perform the automatic scram contactor testing that was removed from DOS 0500-08.

W. WRITER'S REFERENCES:

1. NRC GL 83-28.

2. BWROG NEDC 30844

Nuclear Generation Group

Job Performance Measure

Core Spray Pump Operability Test

JPM Number: B.1.b

Revision Number: 00

Date: 12/14/00

Author: _____ 12/14/00
Date

Facility Representative: _____ 12/15/00
Date

LICENSED OPERATOR REQUAL
JOB PERFORMANCE MEASURE
B.1.b Rev. 00 (12/00)

Examinee Information

Examinee's Name : _____ **Date :** _____

Time Started : _____ **Time Completed :** _____

Evaluator Name : _____

JPM Information

Standard [ ] Faulted [ ] Alternate Path [x] Time Critical [ ]

Task Title : Core Spray Pump Operability Test
Task Number: 209L004
Procedure : DOS 1400-05 "Core Spray System Pump Test With Torus Available"
Procedure Rev : 22

Task Standards : Recognize 2B Core Spray pump failure to meet discharge pressure acceptance criteria during Operability Test.

Validated Time : 18 minutes **Time Critical:** No

Evaluation Method : Perform **Evaluation Location :** Simulator

K & A Number : 209001A4.11 **K & A Rating :** 3.4 / 3.4

Exam Results

1. **Did the examinee complete all the critical steps?** **Yes** _____ **No** _____
2. **Was the JPM completed within the validated time?** **Yes** _____ **No** _____
3. **Did the examinee pass the JPM?** **Yes** _____ **No** _____
4. **Is remediation recommended (req'd. if # 3 marked No)** **Yes** _____ **No** _____
5. **List below any weaknesses noted :**

_____
_____
_____
_____
_____

6. **List below remediation recommended by the evaluator :**

_____
_____
_____
_____

Revision Record (Summary)

1. **Rev. 00,** **Initial issue.**

Initial Conditions

1. Core Spray pump operability surveillance can be performed from any IC.
2. Start the LPCI/CS room cooler fans.
3. SER point required to override alarm 902-3 D-7 from alarming during this JPM. At the TSM prompt on any RSX CRT type the following: **SEROVR O 0089**
4. At the Instructor console type the following **S M CSPPBDEG 20.0 CSPPBFLG** (then press enter)
5. Flag 902-3 panel annunciators H-13 and A-5.

Remotes/Alarms Required

None

Malfunction Required

S M CSPPBDEG 20.0 CSPPBFLG
2B Core Spray Pump degraded at 20% and activates its flag.

Task Conditions (Read to Examinee)

NOTE: Prior to reading task conditions give examinee a copy of DOS 1400-05, marked-up and filled out up to (but not including) step I.7.a., and DISACM sheet for core spray pump, and the attached copy of Task Conditions and Initiating Cues.

- The Unit 2 Core Spray operability surveillance is due.
- The operability surveillance for the 2A Core Spray pump has already been completed (system is filled and vented).
- Required valve operability surveillance has been completed.
- Unit 2 NLO is standing by the 2B Core Spray pump.
- LPCI/Core Spray Room Coolers are running.
- The 2B Core Spray system has been declared inoperable for this surveillance.
- DOS 1400-05 is complete up to and including step I.6.

Initiating Cues (Read to Examinee)

- You are the Unit 2 Aux NSO.
- The Unit 2 Supervisor directs you to complete DOS 1400-05 for the 2B Core Spray pump.
- Start at step I.7.a. and perform up to and including Step I.7.v.

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
1. Ensure the following valves are aligned as stated below: ▪ MO 2-1402-4B, FLOW TEST VLV, CLOSED ▪ MO 2-1402-38B, 2B MIN FLOW VLV, OPEN ▪ 2-1402-6B, MAN VLV (Control Room), OPEN ▪ MO 2-1402-25B, PP DISCH VLV, CLOSED ▪ MO 2-1402-3B, PP SUCT VLV, OPEN ▪ 2-1402-40B-SV, U2 CORE SPRAY PI2-1402-40B INST SV, CLOSED	Ensures the valves are aligned as stated below: Green CLOSED light Green OPEN light Green OPEN light Green CLOSED light Green OPEN light Contact NLO to verify valve CLOSED.	____	____	____
CUE: Acknowledge order, then report that 2-1402-40B-SV is closed.				
2. Verify 2B CORE SPRAY MOTOR has adequate lubrication and record results on Data Sheet 1.	Contacts NLO to verify proper oil level. Results recorded on Data Sheet 1.	____	____	____
CUE: Acknowledge order, then report that 2B CORE SPRAY motor oil level is normal.				
3. Verify the 2B LPCI/CS Room Cooler is operating properly.	Contacts NLO to verify proper room cooler operation.	____	____	____
CUE: Acknowledge order, then report that Unit 2B LPCI/CS room cooler is operating properly.				
* 4. Locally open 2-1402-40B-SV, U2 CORE SPRAY PI2-1402-40B INST SV.	Contacts NLO to open SV 2-1402-40B.	____	____	____
CUE: Acknowledge order, then report that 2-1402-40B-SV is open.				
* 5. Record on Data Sheet 1 the pressure indicated by CORE SPRAY PUMP B SUCT PRESS, PI 2-1402-40B (Pump Stopped).	Contacts NLO to report pressure indicated by PI 2-1402-40B. Records 7 psig on Data Sheet 1.	____	____	____

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
CUE: Acknowledge order, then report that pressure indicated by PI 2-1402-40B is 7 psig.				
6. Obtain 2-1402-8B initial closed dp. ▪ ____ psig, 2-1450-1B ▪ - ____ psig, 2-1402-40B = ____ dP initial NOTE: Evaluator may act as Verifier.	2-1450-1B, ____ psig - 2-1402-40B 7 psig dp Records 2-1450-1B pressure as XX psig, ±	____	____	____
CUE: When asked to verify calculation respond that calculation is correct.				
* 7. Close PP DISCH VLV MO 2-1402-24B	Closes MO 2-1402-24B to obtain Red Closed light.	____	____	____
* 8. Start 2B CORE SPRAY Pump.	Starts 2B Core Spray Pump to obtain Red On light.	____	____	____
9. Verify panel 902-3 annunciators H-13, LPCI/CS PP AT PRESS, and A-3, CORE SPRAY PP RUNNING are in alarm.	Verifies panel 902-3 annunciators in alarm.	____	____	____
Note: 2-1402-4B throttle open time may be obtained by examinee or evaluator. If done by evaluator give the cue following step 12 when CS reaches 4600 gpm. Timing may not be performed since the 2B Core Spray pump is already inoperable.				
* 10. Open MO 2-1402-4B, FLOW TEST VLV.	Places MO 2-1402-4B Control switch to Open (will have dual valve indication)	____	____	____
11. Verify MO 2-1402-38B closes.	2-1402-38B Red closed light illuminated.	____	____	____

	PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
Note:	Examinee may report failure of 2B CS pump to meet acceptance criteria at any point. Refer to CUE following step 16 when report is made				
	12. Throttle MO 2-1402-4B to obtain flow rate of 4600 to 4650 gpm..	Throttles in the Open direction MO 2-1402-4 until pump flow reaches 4600 – 4650 GPM as indicated on FI 2-1450-4B..	____	____	____
CUE:	If evaluator is tracking the 2-1402-4B throttle open time THEN give the following cue. MO 2-1402-4B throttle open time is 35 seconds.				
	13. Tracks time MO 2-1402-4B is in the open position.	Notes the amount of time the 2-1402-4B is in the open position.	____	____	____
	14. Informs Unit Supervisor to declare the 2B Core Spray subsystem inoperable IF the 2-1402-4B valve is throttle open more than 37 seconds..	Unit Supervisor informed if required.	____	____	____
CUE:	IF examinee reports >37 second throttle open time THEN give the following cue: Repeat back the information as stated by examinee and report that the 2B Core Subsystem has been declared inoperable.				
	15. Operates 2B Core Spray pump for 5 minutes prior to taking data.	Explains that 2B Core Spray pump must run for 5 minutes prior to recording data..	____	____	____
CUE:	2B CS pump has operated for 6 minutes.				
*	16. Determines that 2B Core Spray pump fails to meet discharge pressure acceptance criteria..	Recognizes that 2B Core Spray pump fails to meet >235 psig discharge pressure acceptance criteria.	____	____	____

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
Note: When any of the following occurs, give the cue below to end the JPM: - Examinee requests permission to or terminates the surveillance. - Examinee reports failure of 2B CS pump to meet acceptance criteria.				
CUE: Acknowledge report. Terminate the surveillance by performing steps I.7.s through I.7.v. Notify me when the 2B Core Spray pump is off and the discharge valve is closed.				
* 17. Close FLOW TEST VLV MO 2-1402-4B.	Places MO 2-1402-4B Control switch to Close and obtains green light illuminated.	____	____	____
18. Verify MO 2-1402-38B, 2B MIN FLOW VLV, opens.	2-1402-38B Green open light illuminated.	____	____	____
* 19. Stop 2B CORE SPRAY Pump.	Stops 2B Core Spray Pump to obtain Green Off light.	____	____	____
* 20. Open MO 2-1402-24B, PP DISCH VLV.	Opens MO 2-1402-24B to obtain Green Open light.	____	____	____
21. Informs Unit Supervisor that 2B CORE SPRAY Pump is off and discharge valve is open.	Unit Supervisor informed.	____	____	____
CUE: Acknowledge report.				
	END			

LICENSED OPERATOR REQUAL
JOB PERFORMANCE MEASURE
B.1.b Rev. 00 (12/00)

EXAMINEE COPY

Task Conditions

- The Unit 2 Core Spray operability surveillance is due.
- The operability surveillance for the 2A Core Spray pump has already been completed (system is filled and vented).
- Required valve operability surveillance has been completed.
- Unit 2 NLO is standing by the 2B Core Spray pump.
- LPCI/Core Spray Room Coolers are running.
- The 2B Core Spray system has been declared inoperable for this surveillance.
- DOS 1400-05 is complete up to and including step I.6.

Initiating Cues

- You are the Unit 2 Aux NSO.
- The Unit 2 Supervisor directs you to complete DOS 1400-05 for the 2B Core Spray pump.
- Start at step I.7.a. and perform up to and including Step I.7.v.

CATEGORY 1

UNIT 2(3)
DOS 1400-05
REVISION 21

CORE SPRAY SYSTEM PUMP TEST
WITH TORUS AVAILABLE

REQUIREMENTS:

A. Technical Specification Sections:

1. 4.0.E, Surveillance Requirements.

2. 4.5.A.2.a, ECCS Operating Surveillance Requirements.

3. 4.5.B, ECCS Shutdown Surveillance Requirements.

4. Table 4.2.B-1, Item 1.d, ECCS Instrumentation Actuation.

INDEPENDENT TECHNICAL REVIEW

Disciplines	NPPT	RO	RE/QNE	CH	RS	I&C	M&ES
Required:	[X]	[X]	[ ]	[ ]	[ ]	[ ]	[X]

Unit 1 Review Required: [ ] YES [X] NO

Special Reviews:

IST Coordinator.

PLANT OPERATIONAL REVIEW COMMITTEE (PORC):

PORC REQUIRED: [ ] YES [X] NO

APPROVAL AUTHORITY: Shift Operations Supervisor (SOS), or designee

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POST PERFORMANCE REVIEWS:

IST Coordinator.

APR 06 '00

EFFECTIVE DATE

CORE SPRAY SYSTEM PUMP TEST WITH TORUS AVAILABLE

A. PURPOSE:

To demonstrate operability and the operational readiness of the following components per Dresden Station Technical Specifications and In-service Testing Program:

- Exercise open and closed test of CS Pump Discharge Check Valves 2(3)-1402-8A(B).
- Exercise closed test of 2-1402-34A(B), 3-1499-34A, 3-1402-34B and 2(3)-1402-36A(B), CS Header Keep Fill Check Valves.
- Core Spray Pumps.

B. USER REFERENCES:

1. Technical Specification Sections:
   a. 4.0.E, ASME Section XI Testing.
   b. 3/4.2.B, ECCS Instrumentation Actuation.
   c. 3/4.5.A, ECCS - Operating.
   d. 3/4.5.B, ECCS - Shutdown.
   e. Table 4.2.B-1, Item 1.d, ECCS Instrumentation Surveillance Requirements.
2. Procedures:
   a. DAP 07-27, Independent Verification.
   b. DAP 14-02, Leakage Reduction Program.
   c. DAP 11-21, Inservice Testing Program for Pumps and Valves.
3. Prints:
   a. M-27(M-358), Diagram of Core Spray Piping.
   b. 12E-2428 through 12E-2433 (12E-3428 through 12E-3433) Schematic Diagrams, Core Spray System.

4. Other References:

a. Dresden IST Surveillance Acceptance Criteria Manual (DISACM).

C. SUPPLEMENTS:

1. Data Sheet 1, CS Pump Data Sheet.

2. Figure 1, CS Pump Vibration Measurement Locations.

D. EQUIPMENT REQUIRED:

1. Vibration Meter (provided by IST):

a. Identification number: 14230D

b. Calibration date: 12-1-2000

c. Calibration due date: 5-1-2001

2. Vibration Accelerometer (provided by IST):

a. Identification number: 17219B

b. Calibration date: 12-1-2000

c. Calibration due date: 5-1-2001

E. PREREQUISITES:

		INITIALS
1.	IST Coordinator has been notified test is scheduled to be performed	JKL
2.	IST Coordinator has designated acceptable vibration monitoring equipment and personnel to obtain vibration data.	JKL
3.	Torus is in service with CS Pumps lined up to take suction from the torus.	JKL
4.	A copy of the applicable section of the DISACM is attached to this surveillance as a permanent record.	JKL
5.	©Instrument calibrations per DIS 0250-04, U2 ADS Logic System Functional Test OR DIS 0250-10, U3 ADS Logic System Functional Test are NOT in progress ©(W-9).	JKL

F. PRECAUTIONS:

1. Proper care should be taken to ensure the accuracy of vibration measurements.

G. LIMITATIONS AND ACTIONS:

1. A visual leakage inspection of accessible piping and components should be conducted during pump operation.

2. Unacceptable leakage should be documented on Data Sheet 1 and Action Requests initiated.

3. Observe the following Core Spray pump motor starting limitations (one start is defined as the motor reaching rated speed):

   a. For an initial start (ambient temperature startup) two successive start attempts are permitted without a waiting time restriction.

   b. When motor has run for > 18 minutes (rated temperature restart), one restart attempt is permitted without a waiting time restriction.

   c. When motor has run for < 18 minutes, a subsequent start (rated temperature startup) requires a 40 minute cooling period between successive attempts.

4. ©During performance of this procedure, should a CS Pump operate for > 10 minutes with flow through the minimum flow line only, the IST Coordinator shall be notified to evaluate/analyze the affected pump for degradation. ©(W-7, W-8)

5. ©To reduce the risk of water hammer, minimize the time CS is operated with the full flow test valve open (see discussion section). ©(W-2)

6. ©The closed stroke time of MO 2(3)-1402-4A/B is longer than the time assumed in the LOCA Analysis for CS to achieve required flow. Therefore CS shall be declared inoperable during surveillance testing. ©(W-14)

7. Due to the limitations of the LOCA analysis, Core Spray is required to be declared inoperable if the MO 2(3)-1402-4A(B) is throttled open more than 37 seconds.

H. ACCEPTANCE CRITERIA:

1. Acceptance criteria are denoted by (AC) at the beginning of the step to which it applies. For any Step in which an acceptance criteria is not satisfied, the Operations Shift Supervisor shall be notified for system operability.

2. The Core Spray Pump is considered OPERABLE when it can be started and achieves a discharge pressure of □ 235 psig and pump differential pressure is within the Acceptable Range of the DISACM, while delivering a flowrate of between 4600 and 4650 gpm. (TECH SPEC 4.0.E, 4.5.A.2.a)

3. Valve MO 2(3)-1402-38A(B), 2(3)A(B) MIN FLOW VLV, is considered OPERABLE when it is verified that the valve goes closed when the flow test valve is opened AND that it opens when the flow test valve is closed. (TECH SPEC Table 4.2.B-1, Item 1.d)

4. ECCS Keep Fill to Core Spray Check Valves 2-1402-34A(B), 3-1499-34A, 3-1402-34B and 2(3)-1402-36A(B), are considered OPERABLE when they are exercised closed and verification that no abnormal Control Room annunciator or indication of high ECCS Keepfill pressure is received during CS Pump operation.

5. CS Pump Discharge Stop Check Valves 2(3)-1402-8A(B), are considered OPERABLE when the following are verified:

   - Exercise closed - the final dP does not differ more than 10 psi from the initial dP.
   - Exercise open - CS Pump achieves flow of > 4600 gpm.

6. The vibration velocity of each operable CS pump is within the acceptable or alert range, as specified in the DISACM.

I. PROCEDURE:

	INITIALS
1. Vent the CS System as follows:	JKL
a. Verify ECCS Fill System is in service.	JKL
b. Vent the CS System per DOS 1400-07.	JKL
c. Attach the applicable completed checklists from DOS 1400-07 to this procedure.	JKL
2. Start LPCI/CS Room Coolers using 2(3)A & 2(3)B LPCI/CS RM COOLERS control switch on panel 923-5 if available.	JKL
3. ©IF CS System is required to be operable, THEN Enter TECH SPEC LCO Action Statement 3.5.A for the 2(3)A Core Spray loop. ©(W-14)	N/A

INITIALS

4. Perform 2(3)A CS System Test as follows:

a. Ensure the following valves are aligned as stated below:

Component	Description	Position	Initial
MO 2(3)-1402-4A	FLOW TEST VLV	CLOSED	N/A
MO 2(3)-1402-38A	2(3)A MIN FLOW VLV	OPEN	
2(3)-1402-6A	MANUAL VLV (Control Room)	OPEN	
MO 2(3)-1402-25A	PP DISCH VLV	CLOSED	
MO 2(3)-1402-3A	PP SUCT VLV	OPEN	
2(3)-1402-40A-SV	U2(3) CORE SPRAY PI 2(3)-1402-40A INST SV	CLOSED	

b. Verify 2(3)A CS motor has adequate lubrication and record results on Data Sheet 1. N/A

c. ©Verify 2(3)A LPCI/CS Room Cooler is operating properly if available. ©(W-3) N/A

d. Locally, open 2(3)-1402-40A-SV, U2(3) CORE SPRAY PI 2(3)-1402-40A INST SV. N/A

e. Record on Data Sheet 1 the pressure indicated by CORE SPRAY PUMP A/B SUCT PRESS, 2(3)-1402-40A (Pump Stopped). N/A

INITIALS

I. 4. f. Obtain 2(3)-1402-8A initial closed dP:

- N/A psig, 2(3)-1450-1A
- - N/A psig, 2(3)-1402-40A

= N/A dP Initial

Calculation performed by: N/A

Calculation verified by: N/A

g. Close MO 2(3)-1402-24A, PP DISCH VLV. N/A

> CAUTION
>
> © Annunciator 902(3)-3 D-7 2(3)A/B CORE SPRAY HDR PRESS LO, should not be alarming during Core Spray pump start. ©(W-11)

h. Start 2(3)A CORE SPRAY PP. N/A

i. Verify panel 902(3)-3 annunciators H-13, LPCI/CS PP AT PRESS, and A-5, CORE SPRAY PP RUNNING are in alarm. N/A

> NOTE
>
> ©Should the 2(3)A CS Pump trip with FLOW TEST VLV, MO 2(3)-1402-4A open, MO 2(3)-1402-4A must be immediately closed AND when the CS System is required to be operable the 2(3)A CS subsystem shall be vented per DOP 1400-03 within 4 hours. ©(W-2)

> CAUTION
>
> Declare Core Spray inoperable IF the MO 2(3)-1402-4A(B) is throttled open more than 37 seconds AND notify the Unit Supervisor.

j. Open MO 2(3)-1402-4A, FLOW TEST VLV. N/A

(AC) k. Verify MO 2(3)-1402-38A, 2(3)A MIN FLOW VLV, closes and record on Data Sheet 1. (TECH SPEC Table 4.2.B-1, Item 1.d) N/A

INITIALS

I. 4. l. When MO 2(3)-1402-38A, 2(3)A MIN FLOW VLV, is closed throttle MO 2(3)-1402-4A, FLOW TEST VLV to obtain a flow rate of 4600 to 4650 gpm. N/A

m. Operate 2(3)A CS Pump for 5 minutes at a flow rate of 4600 to 4650 gpm prior to recording data AND during this stabilization period, visually inspect accessible system piping for leakage. N/A

n. Read and record the following on Data Sheet 1 for 2(3)A CS Pump (instrument label/description listed on Data Sheet 1):

(AC) (1) Pump discharge pressure is verified∃ 235 psig. (TECH SPEC 4.5.A.2.a) N/A

(2) Suction pressure pump running. N/A

(AC) (3) Pump flow rate verified ∃ 4500 gpm. (TECH SPEC 4.5.A.2.a) N/A

(AC) (4) CS Pump discharge check valve 2(3)-1402-8A, is satisfactorily stroked open by CS header flow verified ∃ 4600 gpm. N/A

(5) Vibration velocities (3H, 3V) N/A

(AC) (6) Verify MO 2(3)-1402-38A, 2(3)A MIN FLOW VLV, has closed. (TECH SPEC Table 4.2.B-1, Item 1.d) N/A

(7) Results of leakage inspection. N/A

(8) Pump motor current at circuit breaker. N/A

o. Calculate 2(3)A CS Pump differential pressure (dP) AND record on Data Sheet 1: N/A

- N/A psig, 2(3)-1450-1A.
- - N/A psig, 2(3)-1402-40A.

= N/A dP Calculation performed by: N/A

Calculation verified by: N/A

INITIALS

NOTE

A preliminary comparison of data against criteria is performed before stopping the pump to identify errors in data and to allow re-taking of data if necessary to verify negative results.

I. 4. (AC) p. Compare 2(3)A CS pump differential pressure and vibration results against the Acceptable Range listed for 2(3)A CS Pump on the DISACM. (TECH SPEC 4.0.E) N/A

(AC) q. ECCS Keep Fill to Core Spray check valves 2-1402-34A, 3-1499-34A and 2(3)-1402-36A are verified to have stroked closed when no abnormal Control Room annunciator or indication of high ECCS Keepfill system pressure indication is received during CS Pump operation. N/A

r. ©Ensure 2(3)A CS Pump has run for a minimum of 15 minutes. ©(W-1) N/A

s. Close MO 2(3)-1402-4A, FLOW TEST VLV. N/A

t. ©Verify MO 2(3)-1402-38A, 2(3)A MIN FLOW VLV, opens (TECH SPEC Table 4.2.B-1, Item 1.d) ©(W-10) N/A

u. Stop 2(3)A CORE SPRAY PP. N/A

v. Open MO 2(3)-1402-24A, PP DISCH VLV. N/A

NOTE

Alarm 902(3)-3 G-5 can be expected when MO 2(3)-1402-24A is opened due to the location of the pressure switch. Follow actions of the DAN to clear the alarm.

w. Verify panel 902(3)-3 annunciators H-13, LPCI/CS PP AT PRESS and A-5 CORE SPRAY PP RUNNING clear. N/A

x. Obtain 2(3)-1402-8A exercise closed dP:

- N/A psig, 2(3)-1450-1A
- - N/A psig, 2(3)-1402-40A

= N/A dP Final

Calculation performed by: N/A

Calculation verified by: N/A

INITIALS

I. 4. y. Determine 2(3)-1402-8A exercised closed by verifying that the dP Final value obtained in Step I.4.x does not differ more than 10 psi from the dP Initial value obtained in Step I.4.f AND record the absolute difference: N/A psi.

Calculations performed by: N/A

Calculations verified by: N/A

z. Locally, close 2(3)-1402-40A-SV, U2(3) CORE SPRAY PI 2(3)-1402-40A INST SV. N/A

5. IF 2(3)B CS System does not require testing, THEN continue with Step I.7.y. N/A

6. ©IF CS System is required to be operable, THEN enter TECH SPEC LCO Action Statement 3.5.A for the 2(3)B Core Spray loop. ©(W-14) JKL

7. Perform 2(3)B CS System Test as follows:

a. Ensure the following valves are aligned as stated below:

COMPONENT	DESCRIPTION	POSITION	INITIAL
MO 2(3)-1402-4B	FLOW TEST VLV	CLOSED	
MO 2(3)-1402-38B	2(3)B MIN FLOW VLV	OPEN	
2(3)-1402-6B	MAN VLV (Control Room)	OPEN	
MO 2(3)-1402-25B	PP DISCH VLV	CLOSED	
MO 2(3)-1402-3B	PP SUCT VLV	OPEN	
2(3)-1402-40B-SV	U2(3) CORE SPRAY PI2(3)-1402-40B INST SV	CLOSED	

b. Verify 2(3)B CS motor has adequate lubrication and record results on Data Sheet 1. _____

c. ©Verify the 2(3)B LPCI/CS Room Cooler is operating properly. ©(W-3) _____

d. Locally, open 2(3)-1402-40B-SV, U2(3) CORE SPRAY PI2(3)-1402-40B INST SV. _____

e. Record on Data Sheet 1 the pressure indicated by CORE SPRAY PUMP B SUCT PRESS, 2(3)-1402-40B (Pump Stopped). _____

INITIALS

I. 7. f. Obtain 2(3)-1402-8B initial closed dP:

- _____ psig, 2(3)-1450-1B
- \- _____ psig, 2(3)-1402-40B

_____

= _____ dP Initial

Calculation performed by: _____

Calculation verified by: _____

g. Close PP DISCH VLV MO 2(3)-1402-24B. _____

CAUTION

©Annunciator 902(3)-3 D-7, 2(3)A/B CORE SPRAY HDR PRESS LO, should not be alarming during Core Spray pump start. ©(W-11)

h. Start 2(3)B CORE SPRAY PP. _____

i. Verify panel 902(3)-3 annunciators H-13, LPCI/CS PP AT PRESS, and A-5, CORE SPRAY PP RUNNING are in alarm. _____

NOTE

©Should the 2(3)B CS Pump trip with FLOW TEST VLV, MO 2(3)-1402-4B open, MO 2(3)-1402-4B must be immediately closed AND when the CS System is required to be operable the 2(3)B CS subsystem shall be vented per DOP 1400-03 within 4 hours. ©(W-2)

CAUTION

Declare Core Spray inoperable IF the MO 2(3)-1402-4A(B) is throttled open more than 37 seconds AND notify shift supervisor.

j. Open MO 2(3)-1402-4B, FLOW TEST VLV _____

(AC) k. Verify MO 2(3)-1402-38B, 2(3)B MIN FLOW VLV, closes. (TECH SPEC Table 4.2.B-1, Item 1.d) _____

l. When MO 2(3)-1402-38B, 2(3)B MIN FLOW VLV, is closed, throttle MO 2(3)-1402-4B, FLOW TEST VLV to obtain a flow rate of 4600 to 4650 gpm. _____

m. Operate 2(3)B CS Pump for 5 minutes at a flow rate of 4600 to 4650 gpm prior to recording data AND during this stabilization period, visually inspect accessible system piping for leakage. _____

INITIALS

I. 7. n. Read and record the following on Data Sheet 1 for 2(3)B CS Pump. (instrument label/description listed on Data Sheet 1):

(AC) (1) Pump discharge pressure verified ∃ 235 psig. (TECH SPEC 4.5.A.2.a). _____

(2) Pump suction pressure. _____

(AC) (3) Pump flow rate verified ∃ 4500 gpm. (TECH SPEC 4.5.A.2.a) _____

(AC) (4) 2(3)-1402-8B, CS Pump discharge check valve is satisfactorily stroked open by CS header flow verified ∃ 4600 gpm. _____

(5) Vibration velocities. (3H, 3V) _____

(AC) (6) Verify MO 2(3)-1402-38B, 2(3)B MIN FLOW VLV, has closed. (TECH SPEC Table 4.2.B-1, Item 1.d) _____

(7) Results of leakage inspection. _____

(8) Pump motor current at circuit breaker. _____

o. Calculate 2(3)B CS Pump differential pressure (dP) AND record on Data Sheet 1:

- _____ psig, 2(3)-1450-1B
- \- _____ psig, 2(3)-1402-40B

_____

= _____ dp.

Calculation performed by: _____

Calculation verified by: _____

NOTE

A preliminary comparison of data against criteria is performed before stopping the pump to show any errors in data and to allow re-taking of data if necessary to verify negative results.

(AC) p. Compare 2(3)B CS pump differential pressure and vibration results against the Acceptable Range listed for 2(3)B CS Pump of the DISACM. (TECH SPEC 4.0.E) _____

INITIALS

I. 7.(AC) q. ECCS Keep Fill to Core Spray check valves 2-1402-34B, 3-1499-34B and 2(3)-1402-36B are verified to have stroked closed when no abnormal Control Room annunciator or indication of high ECCS Keepfill system pressure indication is received during CS Pump operation. _____

r. ©Ensure 2(3)B CS Pump has run for a minimum of 15 minutes. ©(W-1) _____

s. Close FLOW TEST VLV MO 2(3)-1402-4B. _____

t. © Verify MO 2(3)-1402-38B, 2(3)B MIN FLOW VLV, opens (TECH SPEC Table 4.2.B-1, Item 1.d) ©(W-10) _____

u. Stop 2(3)B CORE SPRAY PP. _____

v. Open MO 1402-24B, PP DISCH VLV. _____

NOTE

Alarm 902(3)-3 H-5 can be expected when MO 2(3)-1402-24B is opened due to the location of the pressure switch. Follow actions of the DAN to clear the alarm.

w. Verify panel 902-(3)-3 annunciator H-13, LPCI/CS PP AT PRESS, and A-5 CORE SPRAY PP RUNNING, clear. _____

x. Obtain 2(3)-1402-8B exercise closed dP:

- _____ psig, 2(3)-1450-1B
- \- _____ psig, 2(3)-1402-40B

_____

= _____ dP Final.

Calculation performed by: _____

Calculation verified by: _____

(AC) y. Determine 2(3)-1402-8B exercised closed by verifying that the dP Final value obtained in Step I.7.x does not differ more than 10 psi from the dP Initial value obtained in Step I.7.f AND record the absolute difference: _____ psi. _____

Calculations Performed by: _____

Calculations verified by: _____

INITIALS

I. 7. z. Locally, close 2(3)-1402-40B-SV, U2(3) CORE SPRAY PI 2(3)-1402-40B INST SV. _____

8. Stop the 2(3)A & 2(3)B LPCI/CS RM COOLERS fans if running. _____

9. IF panel 902(3)-3 annunciator D-7, 2(3)A(B) CORE SPRAY HDR PRESS LO, is alarming, THEN vent the 2(3)A(B) CS System and clear the alarm. _____

10. Operations Shift Supervisor evaluate the CS Pumps performance per established IST ranges listed in the DISACM:

a. IF CS Pump test results are in the Alert Range, THEN notify the IST Coordinator. _____

b. IF CS Pump test results are in the REQUIRED ACTION range, THEN:

(1) Notify the IST Coordinator. _____

(2) Immediately declare the affected CS Pump inoperable. _____

(3) Enter TECH SPEC LCO Action Statement 3.5.A _____

(4) Initiate Action Requests as necessary for checking the calibration of the appropriate gauges/inspection of the pump or valves. _____

c. IF CS System was declared inoperable to perform test, AND test results are satisfactory, THEN exit TECH SPEC LCO Action Statement 3.5.A. _____

11. Independently verify 2(3)-1402-40A-SV, U2(3) CORE SPRAY PI 2(3)-1402-40A INST SV Closed. _____

12. Independently verify 2(3)-1402-40B-SV, U2(3) CORE SPRAY PI 2(3)-1402-40B INST SV Closed. _____

J. DISCUSSION:

1. ©The time during which CS is operated in the test mode should be minimized to reduce the risk of water hammer associated with inadvertent draining and subsequent pump start. The potential for this to occur exists when CS is operated in the test mode. The sequence of events that would lead to excessive water hammer include:

a. CS operating in the test mode.

1. b. Loss of power to the running CS Pump and associated ECCS Keep Fill Pump.

c. Subsequent CS initiation.

The water hammer occurs as a result of partial drainage of the injection header due to elevation differences between the injection header and Torus test return. Therefore to minimize the risk, a CS usage factor of less than 10% per year is assumed.

In the event the running CS Pump trips and the Torus Test Return Line Valve (1402-4A or 1402-4B) are open, the Torus Test Return Line Valve must be closed immediately. To restore the CS System to an operable status, the CS injection header must be vented. To maintain the probability of a concurrent loss of coolant event while the CS System is unavailable within acceptable values, CS must be vented within 4 hours (DOP 1400-03). ©(W-2)

2. © CS Pump discharge flow and pressure instrument loop accuracy calculations have been developed for the CS System to quantify instrument accuracy and ASME Code tolerances requirements. The results of the instrument loop accuracy calculations are incorporated in the LOCA Analysis which is applicable to both Unit 2 and Unit 3. Dresden station has addressed ECCS pump flow and pressure measurement uncertainty by taking a flow penalty in the 10 CFR 50.46 LOCA analysis and a resulting reduction in the margin for the Peak Cladding Temperature (PCT) limits. As a result, the data values obtained during performance of this procedure are the as read or nominal valve which is compared against the required acceptance criteria. This is in compliance with ASME Section XI and OM-6 requirements and the recommendations of NUREG 1482. © (W-12, W-13)

3. The CS Pumps must satisfy three flow requirements:

- Technical Specifications bases for operability consideration specifies □ 235 psig and □ 4500 gpm. At this pressure, with an assumed 90 psig reactor vessel backpressure, 4500 gpm is needed.

- The In-service Testing program which is monitoring for pump degradation establishes flow greater than Technical Specifications but less than assumed during accident conditions.

- The LOCA analysis assumes worst case flow demands in which pump runout conditions exist against no Reactor vessel backpressure and substantially higher flow rates.

4. The CS Pump discharge check valves exercise open acceptance criteria is consistent with the IST Program flow requirements for the CS Pumps. This is acceptable since an apparent pump flow anomaly can be caused by failure of the discharge check valve to fully open. The exercise closed test is verified by monitoring differential pressure across the check valve both before and after pump operation. The values are compared to determine acceptable closure of the check valve.

5. The ECCS Keepfill to Core Spray check valves exercised closed acceptance criteria is based on the assumption that any reverse leakage in a water filled system will cause an abnormal condition that can be monitored from the Control Room by instrumentation associated with the overhead annunciators and or ECCS Jockey Pump System parameters.

W. WRITER'S REFERENCES:

1. SER 09-81, Failure of Safety System Pumps Due to Improper Thermal Overload Relay Setpoints. EDE letter 88-035.

2. M. Strait to E. Eenigenburg dated 2/26/90, I.E. Information Notice No. 87-10.

3. ASME Boiler and Pressure Vessel Code Section XI, Subsection IWP-3000 and IWV-3520.

4. DVR 12-3-85-21, HPCI Room Cooler Inoperability.

5. GEK 786 Chapter 25, Core Spray System.

6. JMK letter #87-016 to Shift Engineers, SCRE's and Station Duty Officers from J. Kotowski dated 10-1-87 on Technical Specification LCO Entry Conditions.

7. EDE Letter #89-417, dated 5/22/89, NRC Information Notice 89-08: Pump Damage Caused by Low-Flow Operation.

8. M. Richter Letter to U. S. NRC (NL-89-0237), "Supplemental Response to NRC Bulletin 88-04 for Dresden and Quad Cities Stations", dated 2/27/89.

9. NTS 237-180-93-00701.

10. NTS 237-100-91-02501E-02, I.R. 237/91025 Procedure Revisions Required to complete Safety Related Contact Testing Program.

11. NTS 249-200-94-03603, Potential Transient on LPCI line 3-1509-16.

12. NTS 237-180-96-01101-A, IST Self Assessment Design Basis Reviews.

13. JSPLTR #97-0059 March 21, 1997, Dresden Nuclear Power Station Units 2 and 3 Evaluation of Methods To Address ECCS Flow and Pressure Measurement Uncertainties.

14. Doc I.D. #0005434356, Dresden position on operating status of ECCS during surveillance tests.

CATEGORY 1

UNIT 2(3)
DOS 1400-05
REVISION 21

DATA SHEET 1
(Page 1 of 1)

CS PUMP DATA SHEET

PROCEDURE STEP LOOP A (LOOP B)	INSTRUMENT LABEL/DESCRIPTION	2(3)A CS PUMP	2(3)B CS PUMP	
I.4.b (I.7.b)	Oil Level Verified Adequate	N/A		(T)
I.4.e (I.7.e)	CORE SPRAY PUMP A/B SUCT PRESS PI 2(3)-1402-40A/B (Pump Stopped)	N/A		psig
I.4.k (I.7.k)	MO 2(3)-1402-38A(B), 2(3)A(B) MIN FLOW VLV, closes. (TECH SPEC Table 4.2.B-1, Item 1.d)	N/A		(T)
I.4.n (I.7.n)	2(3)A/B CS PRESS, PI 2(3)-1450-1A/B. Pump discharge pressure is verified ≥235 psig and within the Acceptable Range of the DISACM. (TECH SPEC 4.5.A.2.a)	N/A		psig
	CORE SPRAY PUMP A/B SUCT PRESS PI 2(3)-1402-40A/B (Pump Running)	N/A		psig
	2(3)A/B CS FLOW, FI 2(3)-1450-4A/B	N/A		gpm
	CS Pump Check Valve 2(3)-1402-8A/B Verified Open, CS flow ≥ 4600 gpm.	N/A		(T)
	* Vibration Horizontal Velocity. (3H)	N/A		in/sec
	* Vibration Vertical Velocity. (3V)	N/A		in/sec
	2(3)A/B MIN FLOW VLV, MO 2(3)-1402-38A/B, CLOSED	N/A		(T)
	Visual Leakage Inspection Completed.	N/A		(T)
	Pump Motor Current.	N/A		amps
I.4.o.(I.7.0)	Pump differential pressure (dp)	N/A		psid

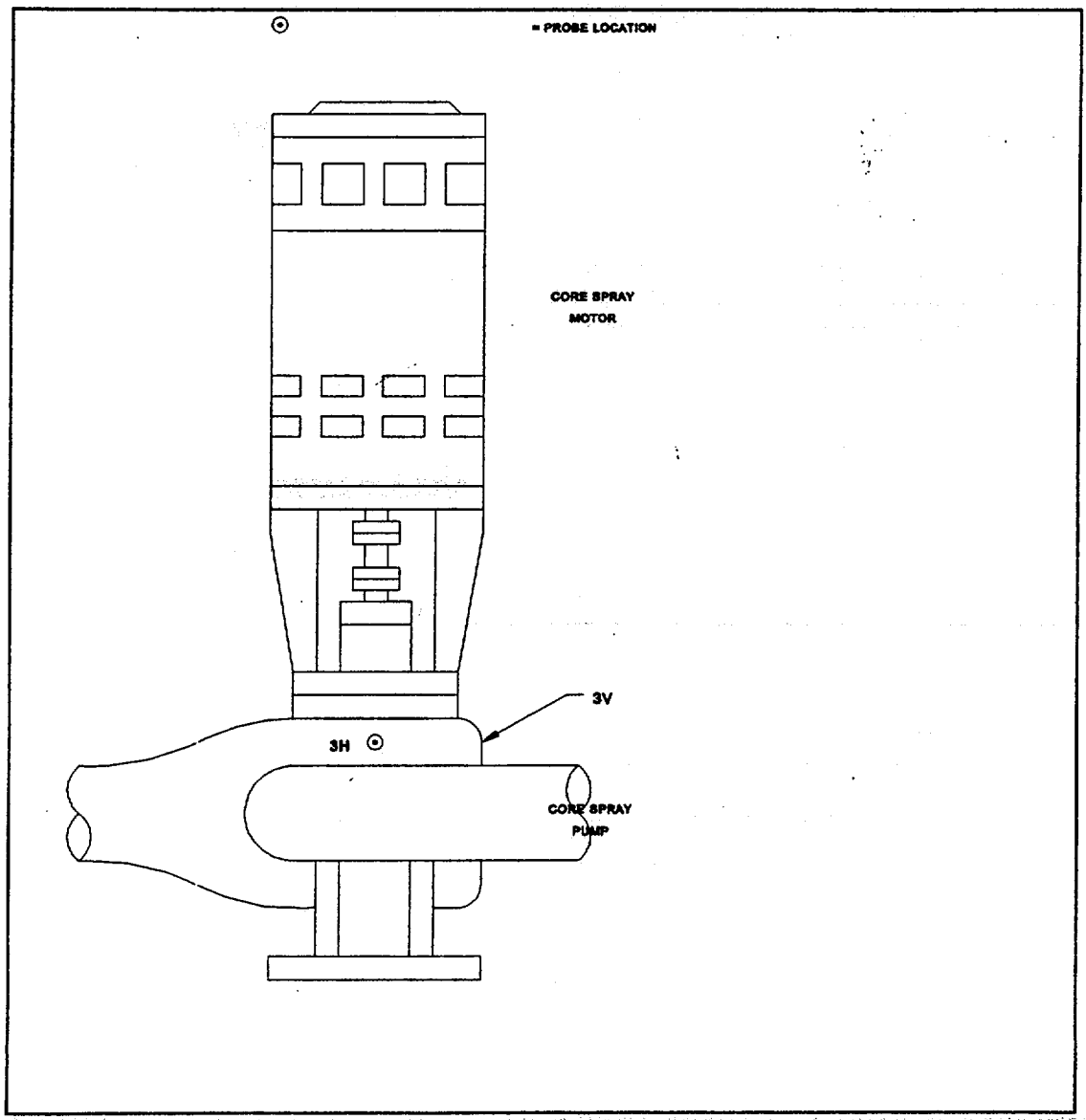
* Refer to Figure 1.

List any system or component leakage related Action Requests and EPNs or other comments below:

FIGURE 1
(Page 1 of 1)

CS PUMP VIBRATION MEASUREMENT LOCATIONS

Both horizontal (3H) and vertical (3V) velocity readings on each pump will be taken during each inservice pump test. Measure the vibration in a plane approximately perpendicular to the rotating shaft and in the horizontal direction.



CHECKLIST A

UNIT 2 CORE SPRAY/LPCI/HPCI VENT VALVES

SYSTEM	STEP	VALVE	OPEN	AS LEFT CLOSED	AS LEFT LOCKED	INDEPENDENT VERIFICATION
CORE SPRAY SYSTEM	I.1.a	2-1402-5A	✓ TCS	✓ TCS	✓ TCS	✓ WRA
		2-1402-11A	✓ TCS	✓ TCS	✓ TCS	✓ WRA
		2-1412-502	✓ TCS	✓ TCS	N/A	✓ WRA
		2-1412-503	✓ TCS	✓ TCS	N/A	✓ WRA
	I.1.b	2-1402-7A	✓ TCS	✓ TCS	✓ TCS	✓ WRA
		2-1402-12A	✓ TCS	✓ TCS	N/A	✓ WRA
	I.1.c	2-1402-52B	✓ TCS	✓ TCS	✓ TCS	✓ WRA
		2-1402-53B	✓ TCS	✓ TCS	N/A	✓ WRA
		2-1402-552	✓ TCS	✓ TCS	N/A	✓ WRA
		2-1402-553	✓ TCS	✓ TCS	N/A	✓ WRA
	I.1.d	2-1499-54	✓ TCS	✓ TCS	✓ TCS	✓ WRA
LPCI SYSTEM	I.2.a	2-1501-79A				
		2-1501-80A			N/A	
	I.2.b	2-4899-70				
		2-4899-71			N/A	
	I.2.c	2-1501-43A			N/A	
		2-1501-45A				
	I.2.d	2-1501-79B				
		2-1501-80B			N/A	
		2-1599-89			N/A	
		2-1599-90			N/A	
	I.2.e	2-4899-75				
		2-4899-76			N/A	
	I.2.f	2-1501-43B			N/A	
		2-1501-45B				
	I.2.g	2-1501-68				
		2-1501-69				
HPCI SYSTEM	I.3.b	2-2301-87				
		2-2301-88			N/A	

Completed By: T.C. Smith Time: 0500 Date: Today

I.V. By: W.R. Allen Time: 0530 Date: Today

Reviewed By: J.K. Linn Time: 0630 Date: Today

TABLE 2A
UNIT 2

QUARTERLY CORE SPRAY PUMP TEST DATA RANGES AND REQUIRED ACTIONS.

The following acceptance criteria is for DOS 1400-05:

This table must be attached to its respective surveillance.

Acceptance Ranges

A. Pump Differential Pressure (dP) (psid)

Pump	Ref. Value	Acceptable Range	Alert Range		Required Action Range
			Low	High	
2A	237	$213 \leq dP \leq 261$	NA	NA	$dP < 213$, $dP > 261$
2B	241	$217 \leq dP \leq 265$	NA	NA	$dP < 217$, $dP > 265$

B. Vibration Velocity (V) (in/sec.)

Pump	Point	V Ref	Acceptable Range	Alert Range	Required Action Range
2A	3H 3V	0.142 0.120	$V \leq 0.325$ $V \leq 0.300$	$0.325 < V \leq 0.700$ $0.300 < V \leq 0.700$	$V > 0.700$ $V > 0.700$
2B	3H 3V	0.139 0.203	$V \leq 0.325$ $V \leq 0.325$	$0.325 < V \leq 0.700$ $0.325 < V \leq 0.700$	$V > 0.700$ $V > 0.700$

C. ASME Reference Values for Unit 2 Core Spray Pumps.

Speed (N) = 3600 RPM
Inlet Pressure (Pi) = 5 PSIG
Flow (Q) = 4600 GPM

Approval for use by: IST Coordinator _____ Date 12-22-95

System Engineering Supervisor _____ Date 12/22/95

Operating Engineer _____ Date 12-22-95

Nuclear Generation Group

Job Performance Measure

Manually Initiate the Isolation Condenser

JPM Number: B.1.c

Revision Number: 00

Date: 12/14/00

Author: _____ 12/14/00
Date

Facility Representative: _____ 12/15/00
Date

LICENSED OPERATOR REQUAL
JOB PERFORMANCE MEASURE
B.1.c Rev. 00 (12/00)

Examinee Information

Examinee's Name : _____ **Date :** _____

Time Started : _____ **Time Completed :** _____

Evaluator Name : _____

JPM Information

Standard [ ] Faulted [X] Alternate Path [ ] Time Critical [ ]

Task Title : Manually Initiate the Isolation Condenser
Task Number: 207L003
Procedure : Op Aid No. 57
Procedure Rev : 02
Task Standards : Initiates the Isolation Condenser manually per the Hard Card and starts the 2/3B Iso-Condenser Makeup pump following the failure of the 2/3A to start.

Validated Time : 8 minutes **Time Critical:** No

Evaluation Method : Perform **Evaluation Location :** Simulator

K & A Number : 207000A4.07 **K & A Rating :** 4.2 / 4.3

Exam Results

1.	**Did the examinee complete all the critical steps?**	**Yes**	_____	**No**	_____
2.	**Was the JPM completed within the validated time?**	**Yes**	_____	**No**	_____
3.	**Did the examinee pass the JPM?**	**Yes**	_____	**No**	_____
4.	**Is remediation recommended (req'd. if # 3 marked No)**	**Yes**	_____	**No**	_____

5. List below any weaknesses noted :

_____
_____
_____
_____

6. List below remediation recommended by the evaluator :

_____
_____
_____
_____

Revision Record (Summary)

1.	Rev. 00	Initial issue

Initial Conditions

- Initilize the simulator in IC-12
- Take the simulator to run and allow to stabilize
- Insert a reactor scram and Group 1 isolation and allow to stabilize
- Caution Tag the 2/3B IC Makeup Pump "For Emergency Use Only."
- Load SimOvr file "Iso Cond" (fails 2/3A Iso Cond M-u pump, closes 17 & 20 valves, and overrides ARM Hi and Rod Block alarms)

Remotes/Alarms Required

None

Malfunction Required

SimOverride for 2/3A Iso Cndr Makeup Pump C/S Trip position – override ON

Task Conditions (Read to Examinee)

- The MSIVs are closed due a Group I isolation
- The immediate operator actions for the scram procedure (DGP 02-03) have been completed due to the Reactor Scram.
- Unit 2 Supervisor has announced entry into DEOP 100.

Initiating Cues (Read to Examinee)

- You are the Unit 2 Aux NSO.
- The Unit 2 Supervisor has directed you to initiate the Isolation Condenser to full flow IAW the Hard Card.
- Inform the Unit 2 Supervisor when completed.

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
1. Close the 2-1301-17 and 2-1301-20 valves.	Verifies 2-1301-17 & 2-1301-20 red closed lights illuminated.	____	____	____
Note: Will receive annunciator 902-3 B-3, Iso Cond Vlvs Off Normal, during next step. This is an expected alarm. Examinee may not acknowledge at this time due emergency situation.				
* 2. Rotate HAND/RESET to HAND position and release.	ROTATES HAND/RESET to HAND.	____	____	____
Note: MO 2-1301-3 control switch may be returned to the auto position or left in the full open position. Either is acceptable. Shortly after MO 2-1301-3 is full open annunciator 902-3 C-3, Iso Cond Hi Temp, will illuminate. This is an expected alarm. Examinee may not acknowledge at this time due to emergency situation.				
* 3. Open the 2-1301-3 valve. (2-1301-3 is fully opened for full flow).	Places 2-1301-3 valve C/S to Open position until [only the Red Open light is illuminated (full flow)].	____	____	____
* 4. Open the 2-4399-74 valve.	Places 2-4399-74 C/S to the Open position (only the Red Open light is illuminated).	____	____	____
5. Start the 2/3A Iso-Condenser Makeup Pumps.	• Places 2/3A Iso-Cond M-U Pump C/S to START position. • Recognizes that pump DOES NOT start.	____ ____	____ ____	____ ____

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
Note: Examinee may request Unit Supervisor permission to start the 2/3B Iso-Condenser Makeup pump caution tagged "Emergency Use Only." Then provide the following cue.				
CUE: Start the 2/3B Iso-Condenser Makeup pump.				
Note: When the 2/3B Iso-Condenser Makeup pump C/S is taken to START the yellow trip light and annunciator 923-1 A-6, Iso Cond M-U pump Trbl, will illuminate. These indications are expected. Both will clear after a few seconds.				
* 6. Start the 2/3B Iso-Condenser Makeup Pump.	Starts 2/3B Iso-Condenser Makeup Pump to obtain Red ON light.	____	____	____
7. Notify Unit Supervisor that the Isolation Condenser has been initiated.	Notifies Unit Supervisor of Isolation Condenser status.	____	____	____
CUE: Acknowledge report.				
	END			

EXAMINEE COPY

Task Conditions

- The MSIVs are closed due a Group I isolation
- The immediate operator actions for the scram procedure (DGP 02-03) have been completed due to the Reactor Scram.
- Unit 2 Supervisor has announced entry into DEOP 100.

Initiating Cues

- You are the Unit 2 Aux NSO.
- The Unit 2 Supervisor has directed you to initiate the Isolation Condenser to full flow IAW the Hard Card.
- Inform the Unit 2 Supervisor when completed.

PANEL 902(3)-3

Op Aid Designation No. 57 (Rev. 02)

ISOLATION CONDENSER

MANUAL OPERATION

1. IF IC auto-initiated, THEN reset initiation logic using ISOL CDR RESET switch on 902(3)-5 panel.
2. Close 2(3)-1301-17 and 2(3)-1301-20 valves.
3. Rotate RX INLET ISOL VLV HAND/RESET switch to HAND and release.
4. Throttle 2(3)-1301-3 valve as needed to control RPV pressure.
5. Open 2(3)-4399-74 valve.
6. Start one ISOL CNDR M-U PP from 923-1 panel.
7. Open/Close 2(3)-4399-74 valve as needed to maintain level.

Refer to: DOP 1300-03

SHUTDOWN

1. Place 2(3)-1301-3 valve in P-T-L.
2. Close 2(3)-4399-74 valve when level in normal band.
3. Stop ISOL CNDR M-U PP(s).

Refer to: DOP 1300-03

Nuclear Generation Group

Job Performance Measure

Crosstie Bus 24-1 and 34-1 using the Crosstie Breakers

JPM Number: B.1.d

Revision Number: 00

Date: 12/14/00

Author: 12/14/00
Date

Facility Representative: 12/15/00
Date

LICENSED OPERATOR REQUAL
JOB PERFORMANCE MEASURE
B.1.d Rev. 00 (12/00)

Examinee Information

Examinee's Name : _____ **Date :** _____

Time Started : _____ **Time Completed :** _____

Evaluator Name : _____

JPM Information

Standard [x] Faulted [ ] Alternate Path [ ] Time Critical [ ]

Task Title : Crosstie Bus 24-1 and 34-1 using the crosstie breakers
Task Number: 262L046
Procedure : Panel 902-8 Operator Aid #33
Procedure Rev : 01

Task Standards : Energize Bus 24-1 by directing closure of 903-8 panel 24-1 & 34-1 Tie ACB and closing the 902-8 panel 24-1 & 34-1 Tie ACB.

Validated Time : 4 minutes **Time Critical:** No

Evaluation Method : Perform **Evaluation Location** : Simulator

K & A Number : 262001A4.01 **K & A Rating :** 3.4 / 3.7

Exam Results

1. **Did the examinee complete all the critical steps?** **Yes** _____ **No** _____
2. **Was the JPM completed within the validated time?** **Yes** _____ **No** _____
3. **Did the examinee pass the JPM?** **Yes** _____ **No** _____
4. **Is remediation recommended (req'd. if # 3 marked No)** **Yes** _____ **No** _____
5. **List below any weaknesses noted :**

_____
_____
_____
_____
_____

6. **List below remediation recommended by the evaluator :**

_____
_____
_____

Revision Record (Summary)

Rev. 00	**Initial Issue**

Initial Conditions

1. This JPM can be performed from any shutdown IC.
2. Type the following at the Instructor station and then press enter.
   S M B12 T12 : S R B03 K49 T01
3. Verify Bus 24 & Bus 24-1 TIE ACB's open.
4. Place Bus 24-1 to Bus 29 in PTL
5. Place Bus 24 & 24-1 Tie ACB in PTL.
6. Crosstie Buses 28 and 29
7. Reset 902-8 panel annunciators.
8. Acknowledge all other annunciators
9. Verify U2 D/G RUN/STOP/AUTO Switch in STOP.

Remotes/Alarms Required

S R T01 (Closes 34-1/24-1 Tie on 903-8 (ACB 152-3421)
S R K49 (Opens Bus 24-1 feed on Bus 24)
S R B03 (Puts RPS Bus A on Alt. Feed)

Malfunction Required

S M B12 (RPS fail to scram)
S M T12 (Fails DG 2 Auto Start Relay)

Task Conditions (Read to Examinee)

- Bus 34-1 is live.
- Bus 24-1 is dead.
- Unit 3 is shutdown and defueled.

Initiating Cues (Read to Examinee)

- You are the Unit 2 Aux NSO.
- The Unit 2 Supervisor has directed you to perform a dead bus transfer with Bus 34-1 powered and Bus 24-1 dead, in accordance with the Hard Card.
- Inform the Unit 2 Supervisor when completed.

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
* 1. At 903-8 panel, SYNCHRONIZE and CLOSE BUS 34-1 & BUS 24-1 TIE ACB.	Directs U-3 AUX NSO to CLOSE BUS 34-1 & BUS 24-1 TIE ACB.	____	____	____
CUE: BUS 34-1 & BUS 24-1 TIE ACB is CLOSED.				
* 2. On the 902-8 panel, Position SYNCHROSCOPE switch for BUS 24-1 & BUS 34-1 TIE ACB to ON.	Places bus 24-1 & 34-1 TIE ACB Synchroscope C/S to on. May verify Incoming Volt meter increase to ~124 volts and Synchroscope lights illuminated	____	____	____
Note: BUS 24-1 to BUS 34-1 TIE ACB control switch must be held in CLOSE for a minimun of 3 seconds to allow BUS 24-1 undervoltage relay to reset.				
* 3. Close BUS 24-1 & BUS 34-1 TIE ACB.	Bus 24-1 & 34-1 TIE ACB control switch held in CLOSED for a minimum of 3 seconds.	____	____	____
4. Verify synchronizing meter indicator at approximately "12 o'clock".	OBSERVES synchronizing meter at ~12 o'clock (±5°).	____	____	____
5. Verify On-coming volt meter reading approximately 124 v.	OBSERVES On-coming volt meter reading approximately 124 v.	____	____	____
6. Verify Bus 24-1 & 34-1 TIE ACB indicates closed.	OBSERVES 24-1 & 34-1 ACB CLOSED light illuminated and OPEN light extinguished.	____	____	____
7. Place SYNCHROSCOPE switch for BUS 24-1 & BUS 34-1 TIE ACB to OFF.	Positions Synchroscope to OFF. May verify Volt meters at "0" and Synchroscope lights extinguished.	____	____	____
8. May reset 902-8 panel annunciators: - E-3, 4Kv Bus 23-1/24-1 Volt Lo - H-10, 4 Kv bus 24-1 voltage Degraded.	Depressed 902-8 panel annunciator reset button and verifies the following annunciators reset: - E-3, 4Kv Bus 23-1/24-1 Volt Lo - H-10, 4 Kv bus 24-1 voltage Degraded.	____	____	____
9. Report to Unit Supervisor that BUS 34-1 and BUS 24-1 are cross-tied.	Informs Unit Two Supervisor that BUS 34-1 & BUS 24-1 are cross-tied.	____	____	____
CUE: Acknowledge report.				
	END			

EXAMINEE COPY

Task Conditions

- Bus 34-1 is live.
- Bus 24-1 is dead.
- Unit 3 is shutdown and defueled.

Initiating Cues

- You are the Unit 2 Aux NSO.
- The Unit 2 Supervisor has directed you to perform a dead bus transfer with Bus 34-1 powered and Bus 24-1 dead, in accordance with the Hard Card.
- Inform the Unit 2 Supervisor when completed.

Nuclear Generation Group

Job Performance Measure

Operate the SPING Control Terminal

JPM Number: B.1.e

Revision Number: 00

Date: 12/06/00

Author: _____ 12/7/00
Date

Facility Representative: _____ 12/7/00
Date

LICENSED OPERATOR REQUAL
JOB PERFORMANCE MEASURE
B.1.e Rev. 00 (12/00)

Examinee Information

Examinee's Name : _____ **Date :** _____

Time Started : _____ **Time Completed :** _____

Evaluator Name : _____

JPM Information

Standard [x] Faulted [ ] Alternate Path [ ] Time Critical [ ]

Task Title : Operate the SPING Control Terminal
Task Number: 272L007
Procedure : U-2/3 Appendix B, Center Desk Operator's Daily Surveillance Log
Procedure Rev : 23

Task Standards : Successfully obtain Release Rate, Stack Flow and SPING Flow.

Validated Time : 10 minutes **Time Critical:** No

Evaluation Method : Perform **Evaluation Location :** Simulator

K & A Number : 272000 2.1.20 **K & A Rating :** 4.3 / 4.2

Exam Results

1. **Did the examinee complete all the critical steps?** **Yes** _____ **No** _____
2. **Was the JPM completed within the validated time?** **Yes** _____ **No** _____
3. **Did the examinee pass the JPM?** **Yes** _____ **No** _____
4. **Is remediation recommended (req'd. if # 3 marked No)** **Yes** _____ **No** _____
5. **List below any weaknesses noted :**

_____
_____
_____
_____
_____

6. **List below remediation recommended by the evaluator :**

_____
_____
_____
_____

Revision Record (Summary)

1. Rev. 00 Initial issue.

Initial Conditions

Any IC is acceptable.

Remotes/Alarms Required

None

Malfunction Required

None

Task Conditions (Read to Examinee)

No equipment is OOS on either unit.

Initiating Cues (Read to Examinee)

1. You are the Unit 2 Aux NSO.
2. The Unit 3 Supervisor has directed you to Obtain and LOG the Release Rate, Stack Flow and SPING Sample Flow, from the Reactor Building Vent SPING Monitor IAW the Center Desk Operator's Daily Surveillance Log, Unit 2/3 Appendix B.
3. Inform the Unit 2 Supervisor when completed.

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
Note: Once the examinee has Appendix B open to the correct page, supply the examinee with a data sheet to log data on.				
1. Retrevies a copy of Appendix B and opens to page for Reactor Building Vent Monitors.	FINDS correct page (Unit 2/3 Appendix B, page 10) for surveillance of the Reactor Building Vent Monitor.	____	____	____
* 2. Obtain information from the SPING Control Terminal (for the Reactor Building Vent SPING): REQUESTS DATA for Field Unit-1 (Reactor Building Vent SPING Monitor).	Using the Keypad on Control Terminal "A" or "B" enter the following keystrokes: **[DATA] [1] [-] [0] [ENTER] [PRINT] [FILE] [ENTER]**	____	____	____
Note: Using "0" for the channel number will access all channels in a field unit.				
* 3. Obtains data from the Control Terminal Print-out, the Reactor Building Vent SPING Monitor results for: Release Rate (ch 1-5), Stack Flow (ch 1-10), and Sping Sample Flow (ch 1-15) and then logs the results.	READS the Print-out from the Control Terminal and LOGS the results in the appropriate space on U 2/3 Apppendix B log sheets. Records value of channels: 1 – 5 Release Rate 1 – 10 Stack Flow 1 – 15 SPING Flow	____	____	____
4. Informs Unit Supervisor that Release Rate, Stack Flow, and SPING Sample Flow has been logged.	Unit Supervisor informed.			
CUE: Acknowledge report.				
	END			

EXAMINEE COPY

Task Conditions

No equipment is OOS on either unit.

Initiating Cues

1. You are the Unit 2 Aux NSO.
2. The Unit 3 Supervisor has directed you to Obtain and LOG the Release Rate, Stack Flow and SPING Sample Flow, from the Reactor Building Vent SPING Monitor IAW the Center Desk Operator's Daily Surveillance Log, Unit 2/3 Appendix B.
3. Inform the Unit 2 Supervisor when completed.

CENTER DESK OPERATOR'S DAILY SURVEILLANCE LOG
ATTACHMENT A, 8 HOUR SHIFT SCHEDULE
SHIFT 2 ROUTINE CHECKLIST

SHIFT 2 ROUTINE CHECKLIST 8 HOUR SHIFT SCHEDULE	INITIALS OR VALUE	REQUIRED MODE	REQUIREMENT AND/OR PROCEDURE	MON	TUE	WED	THU	FRI	SAT	SUN
REACTOR BLDG VENT RADIATION MONITORING										
To obtain SPING data, on SPING terminal touch pad press: DATA, Field Unit #, DASH, 0, ENTER, PRINT, FILE, ENTER. IF SPING terminal unavailable, THEN use local field unit OR computer point R220 (R320). IF Rx Bldg Vent SPING becomes inoperable, THEN BOTH Unit 2 AND 3 Rx Bldg Vent Exhaust Duct Rad Monitors must be operable. (Tech Spec 6.8.D.4) IF Rx Bldg Vent Stack flow rate monitor becomes inoperable, THEN flow rate will be estimated at least once every 4 hours. (Tech Spec 6.8.D.4)										
PANEL 923-7										
2/3 Reactor Bldg Vent Release Rate INSTRUMENT CHECK (CH 1-5)	µCi/cc	All Times	6.8.D.4 12.2-3 12.2-4							
2/3 Reactor Bldg Vent Stack Flow INSTRUMENT CHECK (CH 1-10) (IF SPING channel 10 is unavailable, THEN use computer point F293 OR F393.)	CFM	All Times	6.8.D.4 12.2-3 12.2-4							
2/3 Reactor Bldg Vent SPING Flow INSTRUMENT CHECK (CH 1-15) (>40 & <70 liters/min)	liters /min	All Times	6.8.D.4 12.2-3 12.2-4							
2/3 Reactor Bldg Vent Stack Recorder INSTRUMENT CHECK 923-07 2/3-1740-203	CPM	All Times	6.8.D.4 12.2-3 12.2-4							
Shift Supervisor's Initials										

Nuclear Generation Group

Job Performance Measure

Turbine Main Stop Valve Checks

JPM Number: B.1.f

Revision Number: 00

Date: 12/14/00

Author: _____ 12/14/00
Date

Facility Representative: _____ 12/15/00
Date

LICENSED OPERATOR REQUAL
JOB PERFORMANCE MEASURE
B.1.f Rev. 00 (12/00)

Examinee Information

Examinee's Name : _____ **Date :** _____

Time Started : _____ **Time Completed :** _____

Evaluator Name : _____

JPM Information

Standard [x] Faulted [ ] Alternate Path [ ] Time Critical [ ]

Task Title : Turbine Main Stop Valve Checks
Task Number: 245L007
Procedure : DOS 5600-02
Procedure Rev : 50

Task Standards : Complete Turbine Quarterly Control Valve Testing IAW DOS 5600-02

Validated Time : 21 minutes **Time Critical:** No

Evaluation Method : Perform **Evaluation Location :** In-Plant

K & A Number : 241000A4.07 **K & A Rating :** 3.5 / 3.4

Exam Results

1. **Did the examinee complete all the critical steps?** **Yes** _____ **No** _____
2. **Was the JPM completed within the validated time?** **Yes** _____ **No** _____
3. **Did the examinee pass the JPM?** **Yes** _____ **No** _____
4. **Is remediation recommended (req'd. if # 3 marked No)** **Yes** _____ **No** _____
5. **List below any weaknesses noted :**

_____
_____
_____
_____

6. **List below remediation recommended by the evaluator :**

_____
_____
_____
_____

Revision Record (Summary)

Rev. 00	**Initial Issue**

Initial Conditions

1. IC-12 or IC-17.
2. Adjust load to achieve turbine control valves at ~65% open.

Remotes/Alarms Required

None

Malfunction Required

None

Task Conditions (Read to Examinee)

Note: Provide the examinee with a marked up copy of DOS 5600-02.

- Unit 2 is operating at _____ power.

Initiating Cues (Read to Examinee)

- You are the Unit 2 Aux NSO.
- The Unit 2 Supervisor has directed you to perform the Main Stop Valve, Exercising, Full Closure (Quarterly) portion of DOS 5600-02, Weekly Turbine Checks.
- Inform the Unit 2 Supervisor when completed.

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
1. Verify CV position < 75%.	Verifies CV position <75% by observing Electro Hydraulic Control panel Control Vlv Position meters CV-1 through CV-4 (~65%)	____	____	____
Note: 2-590-124 relays are listed by panel location. Verification can be done in any order. 2-590-124 B, D, E and G relays (high lighted in the following steps) are NOT energized in the simulator and will NOT be in the 'Picked up position. A cue is provided for each of these relays.				
2. Verify relay 2-590-124A is picked up.	At the 902-15 panel verifies relay 2-590-124A movable contacts are in the "back" (picked up) position.	____	____	____
3. Verify relay 2-590-124C is picked up.	At the 902-15 panel verifies relay 2-590-124C movable contacts are in the "back" (picked up) position.	____	____	____
4. Verify relay 2-590-124E is picked up.	At the 902-15 panel verifies relay 2-590-124E movable contacts are in the "back" (picked up) position.	____	____	____
Cue: Relay 2-590-124E movable contacts are in the "back" position.				
5. Verify relay 2-590-124G is picked up.	At the 902-15 panel verifies relay 2-590-124G movable contacts are in the "back" (picked up) position.	____	____	____
Cue: Relay 2-590-124G movable contacts are in the "back" position.				
6. Verify relay 2-590-124B is picked up.	At the 902-17 panel verifies relay 2-590-124B movable contacts are in the "back" (picked up) position.	____	____	____
Cue: Relay 2-590-124B movable contacts are in the "back" position.				
7. Verify relay 2-590-124D is picked up.	At the 902-17 panel verifies relay 2-590-124D movable contacts are in the "back" (picked up) position.	____	____	____
Cue: Relay 2-590-124D movable contacts are in the "back" position.				
8. Verify relay 2-590-124F is picked up.	At the 902-17 panel verifies relay 2-590-124F movable contacts are in the "back" (picked up) position.	____	____	____
9. Verify relay 2-590-124H is picked up.	At the 902-17 panel verifies relay 2-590-124H movable contacts are in the "back" (picked up) position.	____	____	____

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
* 10. Place CV/MSV Test Select in SV Test position.	Places CV/MSV Test Select in SV Test position. May verify MSV Test Pushbuttons backlit.	____	____	____
Note: In items 11 through 14 Depressing the MSV pushbutton is the critical element (designated by •).				
* 11. Press and hold MSV-1 test pushbutton.	• Depresses MSV-1 test pushbutton. Observes the following on MSV-1 meter: - Smooth operation over full travel. - Fast closure from ≤10% closed to full closed. - Annunciator 902-5 A-12, Stop Vlvs Clsd, remains clear as valve reaches full closed position.	____	____	____
* 12. Release MSV-1 test pushbutton and confirm stop valve opens completely.	Releases MSV-1 test pushbutton and observes MSV-1 meter return to 100%.	____	____	____
* 13. Press and hold MSV-2 test pushbutton.	• Depresses MSV-2 test pushbutton. Observes the following on MSV-1 meter: - Smooth operation over full travel. - Fast closure from ≤10% closed to full closed. - Annunciator 902-5 A-12, Stop Vlvs Clsd, remains clear as valve reaches full closed position.	____	____	____
* 14. Release MSV-2 test pushbutton and confirm stop valve opens completely.	Releases MSV-2 test pushbutton and observes MSV-2 meter return to 100%.	____	____	____

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
* 15. Press and hold MSV-3 test pushbutton.	• Depresses MSV-3 test pushbutton. Observes the following on MSV-1 meter: - Smooth operation over full travel. - Fast closure from ≤10% closed to full closed. - Annunciator 902-5 A-12, Stop Vlvs Clsd, remains clear as valve reaches full closed position.	____	____	____
* 16. Release MSV-3 test pushbutton and confirm stop valve opens completely.	Releases MSV-3 test pushbutton and observes MSV-3 meter return to 100%.	____	____	____
* 17. Press and hold MSV-4 test pushbutton.	• Depresses MSV-4 test pushbutton. Observes the following on MSV-1 meter: - Smooth operation over full travel. - Fast closure from ≤10% closed to full closed. - Annunciator 902-5 A-12, Stop Vlvs Clsd, remains clear as valve reaches full closed position.	____	____	____
* 18. Release MSV-4 test pushbutton and confirm stop valve opens completely.	Releases MSV-4 test pushbutton and observes MSV-4 meter return to 100%.	____	____	____
Note: 2-590-124 relays are listed by panel location. Verification can be done in any order. 2-590-124 B, D, E and G relays (high lighted in the following steps) are NOT energized in the simulator and will NOT be in the 'Picked up position. A cue is provided for each of these relays.				
19. Verify relay 2-590-124A is picked up.	At the 902-15 panel verifies relay 2-590-124A movable contacts are in the "back" (picked up) position.	____	____	____

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
20. Verify relay 2-590-124C is picked up.	At the 902-15 panel verifies relay 2-590-124C movable contacts are in the "back" (picked up) position.	____	____	____
21. Verify relay 2-590-124E is picked up.	At the 902-15 panel verifies relay 2-590-124E movable contacts are in the "back" (picked up) position.	____	____	____
Cue: Relay 2-590-124E movable contacts are in the "back" position.				
22. Verify relay 2-590-124G is picked up.	At the 902-15 panel verifies relay 2-590-124G movable contacts are in the "back" (picked up) position.	____	____	____
Cue: Relay 2-590-124G movable contacts are in the "back" position.				
23. Verify relay 2-590-124B is picked up.	At the 902-17 panel verifies relay 2-590-124B movable contacts are in the "back" (picked up) position.	____	____	____
Cue: Relay 2-590-124B movable contacts are in the "back" position				
24. Verify relay 2-590-124D is picked up.	At the 902-17 panel verifies relay 2-590-124D movable contacts are in the "back" (picked up) position.	____	____	____
Cue: Relay 2-590-124D movable contacts are in the "back" position				
25. Verify relay 2-590-124F is picked up.	At the 902-17 panel verifies relay 2-590-124F movable contacts are in the "back" (picked up) position.	____	____	____
26. Verify relay 2-590-124H is picked up.	At the 902-17 panel verifies relay 2-590-124H movable contacts are in the "back" (picked up) position.	____	____	____
27. Place CV/MSV Test Select switch to Off Position.	Places CV/MSV Test Select switch to Off Position. May verify MSV1 through 4 test pushbuttons not backlit.	____	____	____
28. Inform Unit Supervisor that MSV portion of DOS 5600-02 is complete.	Informs Unit Supervisor that MSV portion of DOS 5600-02 is complete.	____	____	____
CUE: Acknowledge report.				
	END			

EXAMINEE COPY

Task Conditions

- Unit 2 is operating at _____ power.

Initiating Cues

- You are the Unit 2 Aux NSO.
- The Unit 2 Supervisor has directed you to perform the Main Stop Valve, Exercising, Full Closure (Quarterly) portion of DOS 5600-02, Weekly Turbine Checks.
- Inform the Unit 2 Supervisor when completed.

WEEKLY TURBINE CHECKS

REQUIREMENTS:

NONE.

TECHNICAL REVIEW AND CONTROL

Disciplines	NPPT	RO	RE/QNE	CH	RS	I&C	M&ES
Required:	[X]	[X]	[ ]	[ ]	[ ]	[ ]	[X]

Unit 1 Review Required: [ ] YES [X] NO

Special Reviews: NONE.

PLANT OPERATIONS REVIEW COMMITTEE (PORC):

PORC REQUIRED [ ] YES [X] NO

APPROVAL AUTHORITY: Shift Operations Supervisor (SOS), or designee

POST PERFORMANCE REVIEWS:

NONE.

SEP 19 2000

EFFECTIVE DATE

WEEKLY TURBINE CHECKS

A. PURPOSE:

To outline periodic testing of Turbine and Turbine Auxiliary system components AND adjustment of Main Turbine Thrust Bearing Wear Detector setpoint.

B. USER REFERENCES:

1. Procedures:

a. DAN 902(3)-7 G-1, THRUST BRG WEAR DETECTOR TEST.

b. DOP 5670-01, Economic Generation Control (EGC) Operation.

2. Prints:

a. 12E-2358B (12E-3358B), Schematic Diagram Electro-Hydraulic Control System Part 2 Alarm & Trip.

b. 12E-2360A 12E-3360A), Schematic Diagram Electro-Hydraulic Control System Alarm & Trip Part 5.

c. 12E-2575BG (12E-3575BC), Schematic Diagram Control Room Annunciator Panel 902(3)-7 Pt-2 of 5.

d. 12E-2616 (12E-3616), Wiring Diagram Turbine Auxiliary Equipment Junction Box TB-1.

C. SUPPLEMENTS:

1. Figure 1, Thrust Bearing Wear Detector Local Test Station.

2. Figure 2, Enhanced Turbine Thrust Bearing Monitoring.

D. EQUIPMENT REQUIRED:

1. BACKUP OVERSPEED TRIP INHIBIT key.

2. POWER LOAD UNBALANCE TRIP INHIBIT key.

3. (Unit 2 only) Digital volt meter (DVM) to read lockout valve solenoid voltage for the Oil Trip Check (Test A).

4. (Unit 3 only) Lockout Valve Keylock Switch Key.

E. PREREQUISITES:

1. Unit not operating in Economic Generation Control for the following tests:

   a. Valve closure testing.

   b. Control Room/remote thrust bearing wear detector testing.

   c. Wear Detector Setpoint Adjustment.

   d. Unit 2 ONLY - While performing CIV Exercising load should be lowered to approximately 800 Mwe to ensure Feedwater heater stability.

   e. CV position should be < 75% to prevent opening bypass valves during the stop valve portion of the surveillance.

2. Communications established with Control Room for the following:

   a. Auxiliary system tests.

   b. Local thrust bearing wear detector test.

   c. Water Detector Setpoint Adjustment.

F. PRECAUTIONS:

1. A Turbine trip can be caused by improper performance of parts of this procedure.

2. A Turbine Trip will occur if Step I.4.i, Twelve Percent Overspeed Circuit, AND Step I.4.1 or I.4.Q, Oil Trip Check, are performed together.

3. Failure to wait at least five (5) minutes between CIV Tests (Step I.3) could result in Feedwater Heater/Flash Tank level control instabilities, creating a potential for Heater/Flash Tank trips.

4. Failure to bypass Turbine Trip with the Key Lock Backup Overspeed Trip Inhibit switch will result in Turbine Trip/Reactor Scram if reactor power > 45%.

5. Failure to bypass Turbine Trip with the Key Lock Power Load Unbalance Trip Inhibit switch will result in Turbine Trip/Reactor Scram if reactor power is > 45%.

F. 6. Turbine Valve Test pushbuttons must not be held depressed longer than 20 seconds if no valve movement is observed. Industry experience has shown that holding in of the testing pushbuttons longer than 20 seconds will burn out the coil due to high in-rush current.

G. LIMITATIONS AND ACTIONS:

1. The Turbine should not be operated for more than one week after an unsuccessful Master Trip Solenoid Valve test.

2. The following evolutions are addressed in this procedure AND may be performed independently.

I.1	(Page 5)	TEST 24-VOLT MASTER TRIP SOLENOID VALVES (WEEKLY)
I.2	(Page 6)	MAIN STOP VALVE, EXERCISING, FULL CLOSURE (QUARTERLY)
I.3	(Page 7)	COMBINED INTERMEDIATE VALVE ECERCISING (QUARTLERY)
I.4	(Page 8)	TURBINE AUXILIARY SYSTEM TEST (WEEKLY)
I.5	(Page 17)	THRUST BEARING WEAR DETECTOR TEST AT CONTROL ROOM PANEL 902(3)-7 (Ad Determined by Shift Manager)
I.6	(Page 19)	THRUST BEARING WEAR DETECTOR MANUAL TEST AT LOCAL TEST STATION (As Determined by Shift Manager)
I.7	(Page 22)	ENHANCED TURBINE THRUST BEARING MONITORING (WEEKLY)
I.8	(Page 24)	THRUST BEARING WEAR DETECTOR ADJUSTMENT (AS REQUIRED)

H. ACCEPTANCE CRITERIA:

1. Acceptance criteria are stated within the procedure body.

INITIAL

I. PROCEDURE:

1. TEST 24-VOLT MASTER TRIP SOLENOID VALVES (WEEEKLY).

a. © IF test indicating lights do NOT operate as stated, THEN perform the following:

- Stop testing.
- Notify Unit Supervisor.
- Initiate repairs.

b. Verify that both TEST A AND TEST B lights are lit over the MASTER TRIP SOLENOID TEST switch. _____

c. IF TEST A AND/OR TEST B light(s) are NOT lit, THEN replace bulb(s). _____

d. Turn MASTER TRIP SOLENOID TEST switch to TRIP A. _____

e. Verify TEST A light is out. _____

f. Turn MASTER TRIP SOLENOID TEST switch to RESET. _____

g. Verify TEST A light is lit. _____

h. Turn MASTER TRIP SOLENOID TEST switch to TRIP B. _____

i. Verify TEST B light is out. _____

j. Turn MASTER TRIP SOLENOID TEST switch to RESET. _____

k. Verify TEST B light is lit. _____

l. IF solenoid valves A AND B test unsuccessfully, THEN:

(1) DO NOT perform any Turbine overspeed testing involving the Lockout Valve (DOS 5600-01).

(2) Notify Unit Supervisor.

(3) Initiate repair of the faulty solenoid valve(s).

I. 2. MAIN STOP VALVE, EXERCISING, FULL CLOSURE (QUARTERLY)

NOTE

Test only one MSV at a time. The valve under test must return to a full OPEN position before continuing on to the next MSV. CV position should be < 75% prior to the start of the test or there is a chance to open bypass valves.

a. Verify relays 590-124A thru H are picked up. _____

b. Place CV/MSV TEST SELECT in SV TEST position. _____

CAUTION

Turbine Valve Test pushbuttons must not be held depressed longer than 20 seconds if no valve movement is observed. Industry experience has shown that holding in of the test pushbuttons longer than 20 seconds will burn out the coil due to high in-rush current.

c. Press and hold (one at a time) each MSV/CV test pushbutton AND observe the following:

M.S.V.-1 TEST	M.S.V.-2 TEST	M.S.V.-3 TEST	M.S.V.-4 TEST

(1) MAIN STOP VLV POSITIONS indicators for smooth valve operation over full travel, with indication of fast closure from 10% closed or less to full closure.

M.S.V.-1 TEST	M.S.V.-2 TEST	M.S.V.-3 TEST	M.S.V.-4 TEST

(2) © As each valve reaches the fully closed position, verify Annunciator 902(3)-5 A-12, STOP VLVS CLSD remains clear. ©(W-8)

M.S.V.-1 TEST	M.S.V.-2 TEST	M.S.V.-3 TEST	M.S.V.-4 TEST

(3) Release test pushbutton AND confirm stop valve opens completely.

M.S.V.-1 TEST	M.S.V.-2 TEST	M.S.V.-3 TEST	M.S.V.-4 TEST

I. 2. c. (4) Verify relays 590-124A thru H are picked up.

M.S.V.-1	M.S.V.-2	M.S.V.-3	M.S.V.-4
TEST	TEST	TEST	TEST

d. WHEN stop valve testing is complete, THEN place CV/MSV TEST SELECT switch to OFF position.

3. COMBINED INTERMEDIATE VALVE EXERCISING (QUARTERLY).

> CAUTION
>
> At least five (5) minutes must be allowed between each CIV Test to allow Feedwater Heater/Flash Tank level to stabilize to normal levels.

a. U2 ONLY - Load should be lowered to approximately 800 Mwe to ensure stable Feedwater heater operation as each CIV is tested.

b. Observe Panel 902(3)-6 for normal Feedwater Heater/Flash Tank level indication.

ISV IV NO. 1 TEST	ISV IV NO. 2 TEST	ISV IV NO. 3 TEST	ISV IV NO. 4 TEST	ISV IV NO. 5 TEST	ISV IV NO. 6 TEST

> CAUTION
>
> Turbine Valve Test pushbuttons must not be held derpessed longer than 20 seconds if no valve movement is observed. Industry experience has shown that holding in of the test pushbuttons longer than 20 seconds will burn out the coil due to high in-rush current.

c. Close each Combined Intermediate Valve, one at a time, by pressing its ISV TEST pushbuttton.

ISV IV NO. 1 TEST	ISV IV NO. 2 TEST	ISV IV NO. 3 TEST	ISV IV NO. 4 TEST	ISV IV NO. 5 TEST	ISV IV NO. 6 TEST

d. Observe COMBINED INTER VLV POSITIONS indicators for smooth valve operation over full travel, with indication of fast closure from 10% closed or less to full closure. (Intercept valve closes first, then stop valve.)

ISV IV NO. 1 TEST	ISV IV NO. 2 TEST	ISV IV NO. 3 TEST	ISV IV NO. 4 TEST	ISV IV NO. 5 TEST	ISV IV NO. 6 TEST

I. 3. e. Release ISV TEST pushbutton AND verify that valve opens. (Stop valve opens first, then intercept valve.)

ISV IV NO. 1 TEST	ISV IV NO. 2 TEST	ISV IV NO. 3 TEST	ISV IV NO. 4 TEST	ISV IV NO. 5 TEST	ISV IV NO. 6 TEST

4. TURBINE AUXILIARY SYSTEM TEST (WEEKLY).

NOTE

The following steps may be performed independently.

a. EHC Fluid Pump.

NOTE

Upon completion of the following steps the previously running EHC pump will be the standby EHC pump and the previously standby EHC pump will be left running.

(1) Record EHC Pump Amps for the running pump, 2(3)-5640-25 or 26. _____amps____

(2) At EHC fluid reservoir, start standby EHC Pump by pressing A(R) PUMP TEST PUSHBUTTON (Alarm 902(3)-7 E-6). _____

(3) At Control Room Panel 902(3)-7 verify NORMAL PRESS light is lit. _____

- IF the NORMAL PRESS light does not light within 30 seconds, THEN secure the pump. _____

(4) At Control Room Panel 902(3)-7, set target on Control Switch for the started pump to RED. _____

(5) Record EHC Pump Amps for the pump that was started, 2(3)-5640-25 or 26. _____amps____

(6) At Control Room Panel 902(3)-7 stop EHC Pump that has been running. _____

I. 4. a. (7) At Control Room Panel 902(3)-7 verify PI 2(3)-5140-12, EHC OIL PRESS indicates normal EHC System pressure: 1550 to 1610 psig. _____

- IF pressure is not within specification, THEN adjust pressure in accordance with DOP 5650-10, EHC Pump Pressure Compensator Adjustment. _____

b. Motor Suction Pump.

(1) At Turbine Oil Reservoir, start Motor Suction Pump by pressing TEST & SHUTOFF VLV AC MOTOR SUCTION PMP pushbutton (Alarm 902(3)-7 D-7). _____

(2) © Record final Motor Suction Pump discharge pressure from MOTOR SUCTION PUMP PRESSURE GAUGE (minimum 20 psig). ©(W-6) _____psig_____

(3) At Control Room Panel 902(3)-7, stop Motor Suction Pump. _____

c. Turning Gear Oil Pump.

(1) At Turbine Oil Reservoir, start Turning Gear Oil Pump by pressing TEST & SHUTOFF VLV AC TG OIL PMP pushbutton (Alarm 902(3)-7 D-9). _____

(2) © Record final Turning Gear Oil Pump discharge pressure from TURNING GEAR OIL PUMP PRESSURE GAUGE (minimum 20 psig). ©(W-6) _____psig_____

(3) At Control Room Panel 902(3)-7, stop Turning Gear Oil Pump. _____

d. Emergency Bearing Oil Pump.

(1) At Turbine Oil Reservoir, start Emergency Bearing Oil Pump by pressing TEST pushbutton (Alarm 902(3)-7 F-7). _____

(2) At Control Room Panel 902(3)-7, stop Emergency Bearing Oil Pump. _____

I. 4. e. Open Turbine Oil Reservoir access hatch AND estimate differential level across oil screens. _____inches_____

(1) IF differential level is greater than 5 inches, THEN notify Shift Supervisor to arrange to have screens cleaned. _____

f. Turbine Bearing Lift Pumps.

(1) At pump location, rotate Cuno oil filter handle one revolution in either direction. _____

(2) At Control Room Panel 902(3)-7, start Turbine Bearing Lift Pumps.

(3) At pump location, record lift pump discharge pressures in table below.

Lift Pump	Pressure Indicator (under relief door)	Discharge Pressure (psig)
1	PI 2(3)-5641-535	
2	PI 2(3)-5641-536	
3	PI 2(3)-5641-537	
4	PI 2(3)-5641-538	
5	PI 2(3)-5641-539	
6	PI 2(3)-5641-540	
7	PI 2(3)-5641-541	
8	PI 2(3)-5641-542	
9	PI 2(3)-5641-543	
10	PI 2(3)-5641-544	

(4) At lift pump location, momentarily stop lift pumps by pressing TEST pushbutton. (Alarms 902(3)-7 G-9).

- PS14 (stops 6 pumps) _____
- PS14A (stops 4 pumps) _____

(5) At Control Room Panel 902(3)-7, stop Turbine Bearing Lift Pumps. _____

g. Hydrogen Emergency Seal Oil Pump.

(1) At Hydrogen Seal Oil unit, start Hydrogen Emergency Seal Oil Pump by pressing TEST pushbutton. (Alarm 902(3)-7 F-11) _____

I. 4. g. (2) WHEN discharge pressure reaches 95 psig, THEN local red lamp (above pushbutton) lights).

(3) At Control Room Panel 902(3)-7, stop Hydrogen Emergency Seal Oil Pump.

_____

NOTE

Upon completion of the following steps, the current running Stator Cooling Water Pump will be the standby Stator Cooling Water Pump and the current standby Stator cooling Water Pump will be left running.

h. Stator Cooling Water Pump.

(1) At Stator Cooling Water unit, start standby Stator Cooling Water Pump by pressing TEST pushbutton. (Alarm 902(3)-7 C-10) _____

(2) At Control Room Panel 902(3)-7, set target on control switch for the started pump to Red. _____

(3) At Control Room Panel 902(3)-7, stop standby Stator Cooling Water Pump. _____

i. 12 Percent Overspeed Circuit (same as Test D of DOS 5600-01).

(1) Verify NORMAL light on at OVERSPEED TRIP SYS STATUS LOCKOUT VLV EMERG GOVERNOR on Panel 902(3)-7. _____

CAUTION

Failure to bypass Turbine Trip with the Key Lock Backup Overspeed Trip Inhibit switch will result in Turbine Trip/Reactor Scram if reactor power is > 45%.

(2) Insert key and place BACKUP OVERSPEED TRIP INHIBIT switch to INHIBIT. _____

(3) BOST INHIBIT (Red) light on. _____

(4) At AUX Electric Room local Panel 902(3)-31 Cabinet A, push green 12 PERCENT OVERSPEED CIRCUIT - PUSH TO TEST pushbutton AND hold for a few seconds. _____

(5) Verify NORMAL light off at OVERSPEED TRIP SYS STATUS LOCKOUT VLV EMERG GOVERNOR. _____

I. 4. i. (6) Verify 12 PERCENT OVERSPEED CIRCUIT - PUSH TO TEST light on. _____

(7) Release 12 PERCENT OVERSPEED CIRCUIT - PUSH TO TEST pushbutton _____

(8) Verify 12 PERCENT OVERSPEED CIRCUIT - PUSH TO TEST light off. _____

(9) Verify NORMAL light on at OVERSPEED TRIP SYS STATUS LOCKOUT VLV EMERG GOVERNOR. _____

(10) Place BACKUP OVERSPEED TRIP INHIBIT switch to OFF and remove key. _____

(11) BOST INHIBIT (Red) light off. _____

j. Power-Load Unbalance Circuit.

NOTE

LP INLET PRESS, PI 2(3)-5640-67, must be >100 psig to perform this test.

CAUTION

Failure to bypass Turbine Trip with the Key Lock Power Load Unbalance Trip Inhibit switch will result in Turbine Trip/Reactor Scram if reactor power is > 45%.

(1) Insert key and place PWR LOAD UNBAL TRIP INHIBIT switch to INHIBIT. (CW) _____

(2) PLUT INHIBIT (Red) light on. _____

(3) At AUX Electric Room local Panel 902(3)-31, Cabinet A, push POWER-LOAD UNBALANCE CIRCUIT TEST pushbutton AND hold for a few seconds. _____

(4) Verify POWER-LOAD UNBALANCE CIRCUIT TEST pushbutton backlight is lit. _____

(5) Verify Main Control Room Alarm 902(3)-7 H-5, EHC POWER/LOAD UNBALANCED is received. _____

I. 4. j. (6) IF pushbutton backlight fails to light, THEN:

- Reduce load to 40% (maximum overspeed about 102% on loss of load).

OR

- Continue normal operations (maximum overspeed as much as 120% on loss of load at full power).

(7) Place PWR LOAD UNBAL TRIP INHIBIT switch to OFF and remove key. (CCW). _____

(8) PLUT INHIBIT (Red) light off. _____

k. Back-Up Speed Circuit.

(1) At Panel 902(3)-31, push white BACKUP SPEED CIRCUIT TEST pushbutton AND hold for a few seconds. _____

(2) Verify TEST light is ON. _____

(3) Verify Alarm 902(3)-7 G-5, EHC ELECTRICAL MALFUNCTION. _____

(4) Verify AT SET SPEED light stays lit. _____

NOTE

(Unit 2 only)

Before starting the Oil Trip check (Test A), verify personnel are in position at the turbine front standard to take the lockout valve solenoid voltage reading.

1. (Unit 2 Only) Oil Trip Check (TEST A, Overspeed Trip Device and Mechanical Trip Valve) at Panel 902-7, OVERSPEED TRIP SYS STATUS LOCKOUT VLV EMERG GOVERNOR. _____

(1) Push TEST (Alarm 902-7 A-3). _____

I. 4. 1. (2) Before proceeding, verify proper voltage at the lockout valve solenoid as follows:

- Locate junction box TB-1 at the turbine front standard inside the north side doors for Unit 2. _____
- Verify the digital voltmeter (DVM) leads are connected for 120 VAC measurement. _____
- Verify the DVM switch positions are set for 120 VAC measurement. _____
- Verify steady state voltage is >100 VAC across TB-1 terminals AD4 and AD5. _____

(3) Verify LOCKED OUT light on. _____

(4) Verify NORMAL light off. _____

(5) Push OIL TRIP until MTV trips (a few seconds) (OIL TRIP will light while depressed). _____

(6) Verify TRIPPED light on. _____

NOTE

Annunciator 902-7 B-3, TURB OVRSPD TRIP RESET, will alarm AND RESETTING light will come on a few seconds after RESET is depressed. The RESET and tripped lights both actuate from the same relay monitoring MTV position. In the event that the RESET light should burn out during testing, the TRIPPED light going off can be used as a condition of MTV RESET.

m. Push RESET at OVERSPEED TRIP SYS STATUS LOCKOUT VLV EMERG GOVERNOR AND HOLD for approximately 10 seconds after RESET light comes on (or TRIPPED light off), then release. _____

I. 4. n. Verify the following conditions are (were) met:

- RESETTING light on during RESET and off after RESET. _____
- RESET light on (or TRIPPED light off). _____
- Approximately 10 seconds after RESET release, LOCKED OUT light off AND NORMAL light on. _____

o. After waiting at least 20 seconds, verify LOCKED OUT light still off and NORMAL light still on. _____

- RESET panel 902-7 annunciators. _____ |

NOTE

Step I.4.p provides a means to reset test logic if time delay relay drift occurs for Relays K1D29 and K2D29, providing MTV is still reset. An Action Request should be generated to correct the problem.

p. IF LOCKED OUT light is on AND NORMAL light is off, THEN perform the following:

CAUTION

The RESET light referenced is the MTV Status Light, NOT the Main Turbine RESET light. Depressing NORMAL with the MTV RESET light off could result in a turbine trip.

(1) Verify RESET light on at OVERSPEED TRIP SYS STATUS LOCKOUT VLV EMERG GOVERNOR. _____

(2) Momentarily depress NORMAL. _____

(3) Verify LOCKED OUT light goes off and NORMAL light is on. _____

- RESET panel 902-7 annunciators. _____ |

q. (Unit 3 Only) Oil Trip Check (TEST A, Overspeed Trip Device and Mechanical Trip Valve) at Panel 903-7, OVERSPEED TRIP SYS STATUS LOCKOUT VLV EMERG GOVERNOR. _____

I. 4. q. (1) Place Lockout Valve Keylock Switch to TEST. (Alarm 903-7 A-3) _____

(2) Verify LOCKED OUT light on. _____

(3) Verify NORMAL light off. _____

(4) Push OIL TRIP until MTV trips (a few seconds) (OIL TRIP will light while depressed). _____

(5) Verify TRIPPED light on. _____

(6) Verify RESET light off. _____

NOTE

Annunciator 903-7 B-3 TURB OVRSPD TRIP RESET, will alarm AND RESETTING light will come on a few seconds after RESET is depressed. The RESET and tripped lights both actuate from the same relay monitoring MTV position. In the event that the RESET light should burn out during testing, the TRIPPED light going off can be used as a condition of MTV RESET.

r. Push RESET at OVERSPEED TRIP SYS STATUS LOCKOUT VLV EMERG GOVERNOR AND HOLD for approximately 10 seconds after RESET light comes on (or TRIPPED light off), then release. _____

s. Verify the following conditions are (were) met:

- RESETTING light on during RESET and off after RESET. _____
- RESET light on (or TRIPPED light off). _____
- Approximately 10 seconds after RESET release, the NORMAL light is on AND then OFF ~15 seconds later. _____

t. Verify the following conditions are met:

- LOCKED OUT light is ON
- RESET light ON
- TRIPPED light OFF
- NORMAL light OFF _____

I. 4. u. IF light indications from I.4.t are met, THEN perform the following:

(1) Place Lockout Valve Keylock Switch to NORMAL. _____

(2) Momentarily depress NORMAL. _____

(3) Verify LOCKED OUT light is off and NORMAL light is on. _____

(4) Reset panel 903-7 annunciators. _____

5. THRUST BEARING WEAR DETECTOR TEST AT CONTROL ROOM PANEL 902(3)-7 (frequency as specified by Shift Manager).

CAUTION

The THRUST BEARING WEAR DETECTOR 'TEST' Light at 902(3)-7 will LITE and Annunciator 902(3)-7 G-1, THRUST BRG WEAR DETECTOR TEST, will alarm whenever one of the following pushbuttons is pressed:

- Control Room Panel 902(3)-7 TEST TURB or TEST GEN pushbutton.
- Local test station TEST Switch.

The alarm and 'TEST' Light indicates Turbine thrust bearing wear trip is bypassed.

Failure of alarm to sound or 'TEST' Light to LITE during the run back test indicates that the trip is not bypassed. Test pushbutton should be released and testing stopped until the alarm is corrected. The Turbine could trip if testing continued.

Failure of alarm to clear after the pushbutton is released and the indicator returns to zero indicates that the Turbine thrust bearing wear trip is still bypassed and that corrective action should be taken before proceeding with further testing.

NOTE

The run back test from 5 mils to 10 mils travel ensures that the thrust bearing wear detector test motor runs back properly. A failure to run back from the trip setpoint will cause a Turbine trip. Both TURB END and GEN END must be tested to insure run back limit switches function properly.

I. 5. a. Press and hold TEST TURB END OR TEST GEN END pushbutton until the THRUST BEARING WEAR - MILS indicator above THRUST BEARING WEAR DETECTOR TEST, shows 5 mils to 10 mils travel Verify associated "TEST TURB" Light or "TEST GEN" Light Lites, until run back occurs to "0" Mils (± 2 Mils)

TURB END / GEN END
_____ / _____

b. Release TEST TURB END OR TEST GEN END pushbutton (THRUST BEARING WEAR - MILS indicator should run back to zero (± 2 mils).

_____ / _____

(1) IF THRUST BEARING WEAR - MILS indicator fails to run back to zero (± 2 mils), THEN stop testing and initiate maintenance.

_____ / _____

(2) Repeat steps I.5.a. & b. for remaining TURB or GEN End.

_____ / _____

NOTE

The TEST pushbutton must be held down until trip point is reached (typically 20 to 40 mils). The wear detector test motor operates around 1 mil per second, so it will take 20 to 40 seconds to reach the trip point.

CAUTION

Failure of the 'TEST TURB' or 'TEST GEN' lights to stay lit after the associated test button is released at trip point indicates that runback will not occur and the turbine will trip in approximately 5 seconds. To prevent turbine trip, NSO should immediately maintain the pushbutton DEPRESSED that was just released until the THRUST BEARING WEAR DETECTOR local test station can be positioned to '0' mils.

c. Press and hold TEST TURB END button until THRUST BEARING WEAR - MILS indicator stabilizes at trip point.

_____

d. Record THRUST BEARING WEAR - MILS indicator reading

_____ mils _____

I. 5. e. Release TEST TURB END pushbutton AND verify THRUST BEARING WEAR - MILS indicator returns to zero ± 2 mils.

_____

f. © IF THRUST BEARING WEAR - MILS indicator stabilizes at a reading of greater than 45 mils, THEN:

(1) Place Caution Card to prevent further testing until condition is corrected. ©(W-7)

(2) Adjust thrust bearing wear detector per Step I.8 of this procedure.

g. Press and hold TEST GEN END pushbutton until THRUST BEARING WEAR - MILS indicator stabilizes at the trip point.

_____

h. Record THRUST BEARING WEAR - MILS indicator reading.

_____ mils _____

i. Release TEST GEN END pushbutton AND verify THRUST BEARING WEAR - MILS indicator returns to zero ± 2 mils.

_____

j. © IF THRUST BEARING WEAR - MILS indicator stabilizes at a reading of greater than 45 mils, THEN:

(1) Place Caution Card to prevent further testing until condition is corrected. ©(W-7)

(2) Adjust thrust bearing wear detector per Step I.8 of this procedure.

k. RESET Panel 902(3)-7 annunciator (approximately 5 seconds after '0' mils is reached).

_____

6. THRUST BEARING WEAR DETECTOR MANUAL TEST AT LOCAL TEST STATION (refer to Figure 1) (frequency as specified by Shift Manager).

a. Perform the following prior to performing test:

(1) Obtain permission from Load Dispatcher.

_____

(2) Obtain a Radiation Work Permit.

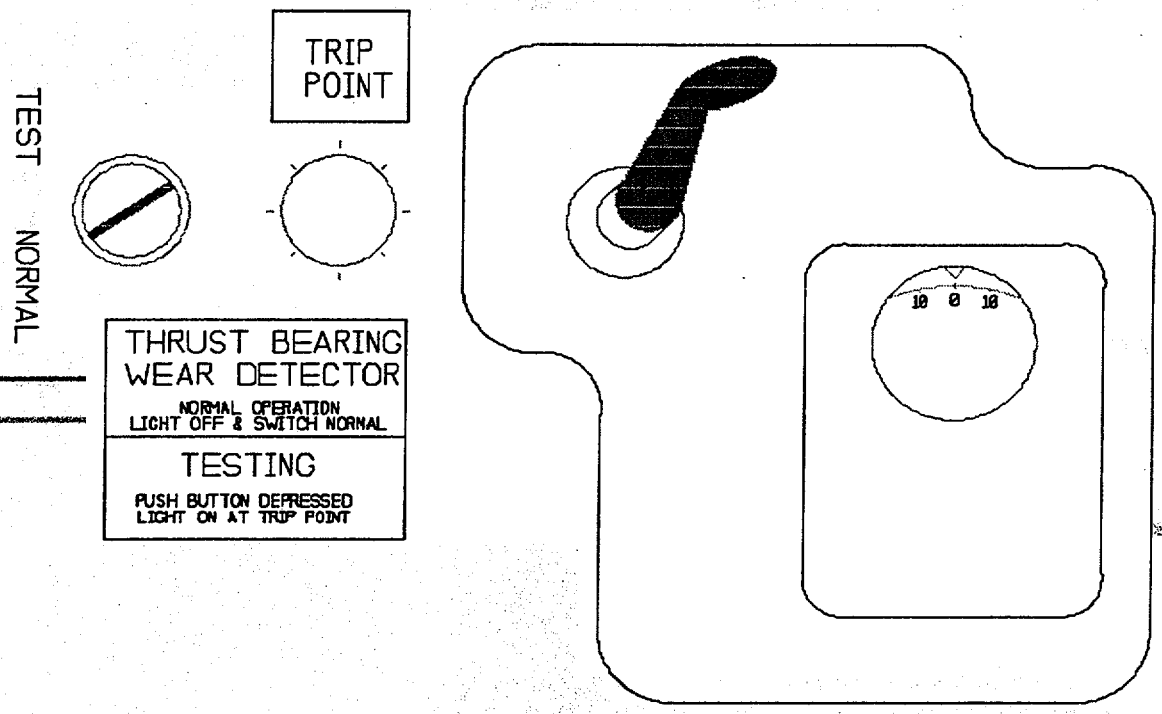
_____

(3) Establish communications with Control Room.

_____

I. 6. b. Place Thrust Bearing Wear Detector test selector switch in TEST. (Alarm 902(3)-7 G-1) _____

FIGURE 1
THRUST BEARING WEAR DETECTOR LOCAL TEST STATION



NOTE

1. The TRIP POINT light does not light until the trip point is reached.
2. The test handle must be moved slowly when approaching the trip point.

I. 6. c. Rotate test handle in "+" direction until TRIP POINT light goes on. _____

d. Record dial reading +_____mils _____

e. Rotate test handle back to zero (0). _____

f. © IF dial reads greater than 45 mils, THEN:

(1) Adjust thrust bearing wear detector per Step I.8 of this procedure.

(2) Place Caution card to prevent further testing until condition is corrected. ©(W-7) _____

g. Rotate test handle in "-" direction until TRIP POINT light goes on. _____

h. Record dial reading -_____ mils _____

i. Rotate test handle back to zero (0). _____

j. © IF dial reads greater than 45 mils, THEN:

(1) Adjust thrust bearing wear detector per Step I.8 of this procedure.

(2) Place Caution card to prevent further testing until condition is corrected. ©(W-7) _____

k. Record dial reading -_____ mils _____

l. Return test selector switch to NORMAL. _____

I. 7. ENHANCED TURBINE THRUST BEARING MONITORING (WEEKLY)

NOTE

In the event that any one of the thrust bearing temperature monitoring computer points T220(T320), T221(T321), T222(T322), T223(T323) fail, submit an Action Request **and** an Engineering Request (if this is the first occurrence). If more than one computer point fails then **immediately** notify the System Engineer for further evaluation. Computer points D206(D306) and D207(D307) will also fail as these values are calculated using the above mentioned computer points. Computer points T218(T318) and T219(T319) temperature of oil discharged from the thrust bearing can be used as **additional** monitoring of the condition of the thrust bearing.

a. At Control Room Panel 902(3)-7, record turbine oil outlet temperature (TI 2(3)-5140-14, OIL OUTLET TEMP). _____ °F _____

b. Calculate the number of degrees that turbine oil outlet temperature is:

Greater than 115°F_____ _____

OR

Less than 115°F _____ _____

(1) Calculation Verified. _____

c. Record data as specified below to determine corrected babbitt temperature for use in Figure 2.

Description	Thrust Bearing Temperature Computer Point			
	T220 (T320)	T221 (T321)	T222 (T322)	T223 (T323)
A. Normal alarm setpoint.	175°F	175°F	175°F	175°F
B. Actual alarm setpoint from computer				
C. Present reading.				
D. Degrees less than 115°F from Step I.7.b.				
OR				
E. Degrees greater than 115°F from Step I.7.b.				
F. Calculate corrected babbitt temperature by: Adding (D) to (C) OR Subtracting (E) from (C)				
G. Calculation verified (Initials)				

I. 7. d. Determine front plate temperature differential for use in Figure 2.

T220(T320) _____ _____

T222(T322) _____ _____

Differential = _____ _____ _____

(1) Calculations verified. _____ _____

e. Determine rear plate temperature differential for use in Figure 2.

T221(T321) _____ _____

T223(T323) _____ _____

Differential = _____ _____ _____

(1) Calculations verified. _____ _____

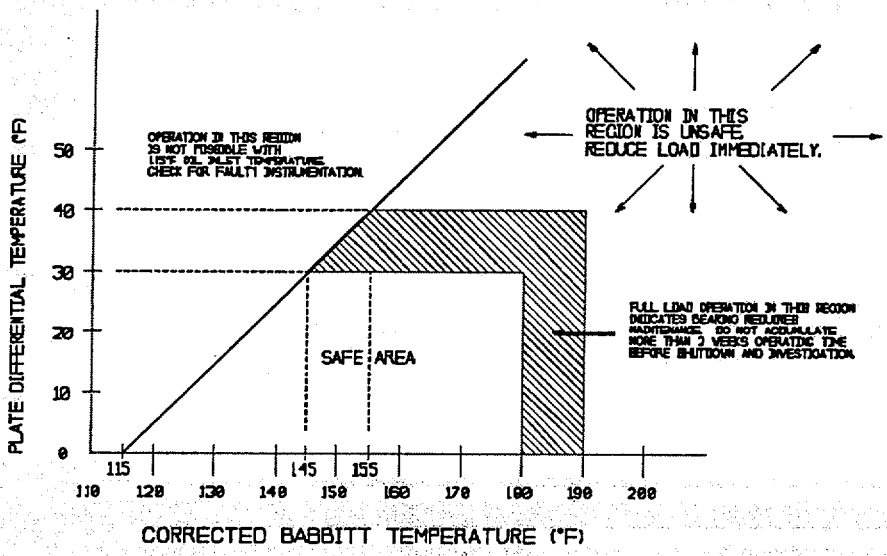
f. Using the corrected babbitt temperature AND both front and rear plate temperature differentials, determine the operating region from Figure 2.

(1) IF operation is in the safe region, THEN take no further actions. _____

(2) IF operation is in the shaded region, THEN initiate thrust bearing maintenance to begin within 2 weeks. _____

(3) IF operation is outside the shaded region, THEN notify Unit Supervisor AND reduce load immediately. _____

FIGURE 2
ENHANCED TURBINE THRUST BEARING MONITORING



I. 7. g. From computer, record thrust bearing differential temperatures and alarm setpoints below.

Computer Point	Normal Alarm Setpoint	Actual Alarm Setpoint	Present Reading
D206(D306)	25°F		
D207(D307)	25°F		

8. THRUST BEARING WEAR DETECTOR ADJUSTMENT (AS REQUIRED)

NOTE

This adjustment is performed locally at the wear detector housing.

a. Contact the System Engineer prior to making any adjustments to Thrust Bearing Wear Detector (TBWD) setpoints. _____

b. Notify U2(3) NSO that TBWD Test Switch is being taken to TEST. _____

CAUTION

While the TBWD TEST-NORMAL switch is in TEST, all supervisory functions of the TBWD are out of service.

I. 8. c. Rotate TBWD TEST-NORMAL switch to TEST. _____

d. Verify annunciator 902(3)-7, THRUST BRG WEAR DETECTOR TEST, alarms. _____

e. IF annunciator 902(3)-7, THRUST BRG WEAR DETECTOR TEST, did NOT alarm, THEN:

(1) DO NOT continue this adjustment.

(2) Rotate TBWD TEST-NORMAL switch to NORMAL.

(3) Contact IMD to inspect TBWD.

CAUTION

Rotating Test Handle faster than approximately 1 mil per second will move the dial faster than pressure switches can pick up.

f. Rotate the Test Handle on top of the TBWD Housing in the "+" direction UNTIL approximately 5 mils is indicated on the dial. _____

g Place the TBWD TEST-NORMAL switch in NORMAL. _____

h. Verify Run Back Motor returns the dial to zero (0). _____

i. IF the Run Back Motor does NOT return the dial to zero (0), THEN DO NOT continue this adjustment.

j. Place the TBWD TEST-NORMAL switch in TEST. _____

CAUTION

Rotating Test Handle faster than approximately 1 mil per second will move the dial faster than pressure switches can pick up.

k. Rotate the Test Handle on top of the TBWD Housing in the "-" direction UNTIL approximately 5 mils is indicated on the dial. _____

I. 8. l. Place the TBW TEST-NORMAL switch in NORMAL. _____

m. Verify Run Back Motor returns the dial to zero (0). _____

n. IF the Run Back Motor does NOT return the dial to zero (0), THEN DO NOT continue this adjustment.

CAUTION

IF the Test Handle is rotated to the Trip Point before the TBWD NORMAL-TEST switch is placed in TEST, THEN the Unit will trip in approximately 3 to 5 seconds.

o. Place the TBWD TEST-NORMAL switch in TEST. _____

p. Slowly rotate the Test Handle on top of the TBWD Housing in the "+" direction UNTIL the TRIP POINT light comes on. _____

q. Record the dial reading:

(+) Reading _____ mils _____

r. Slowly rotate the Test Handle on top of the TBWD Housing in the "-" direction UNTIL the TRIP POINT light goes off. _____

s. Record the dial reading:

(+) Reading _____ mils _____

NOTE

The TRIP POINT light should go off approximately 10 mils less than the value when the TRIP POINT light came on.

t. Slowly rotate the Test Handle on top of the TBWD Housing in the "-" direction UNTIL the TRIP POINT light comes on. _____

u. Record the dial reading:

(-) Reading _____ mils _____

I. 8. v. Slowly rotate the Test Handle on top of the TBWD Housing in the "+" direction UNTIL the TRIP POINT light goes off. _____

w. Record the dial reading:

(+) Reading _____ mils _____

NOTE

The TRIP POINT light should go off approximately 10 mils less than the value when the TRIP POINT light came on.

x. Slowly rotate the Test Handle on top of the TBWD Housing in the "+" direction UNTIL zero (0) is indicated on the dial. _____

y. IF the trip setpoint requires adjustment, THEN perform the following:

(1) Slowly rotate the Test Handle in either direction UNTIL the TRIP POINT light comes on. _____

(2) Pull up on the Dial Set Disengage Knob on top of the Test Handle. _____

(3) Rotate the dial to approximately "+" OR "-" 33 mils (31 to 35 mils) depending on the direction the Test Handle was rotated. _____

(4) Release the Dial Set Disengage Knob on top of the Test Handle. _____

NOTE

The gear set will re-engage AND the TRIP POINT light should go out at approximately 20 mils.

(5) Slowly rotate Test Handle back to zero(0) _____

(6) Slowly rotate the Test Handle on top of the TBWD Housing in the "+" direction UNTIL the TRIP POINT light comes on. _____

(7) Record the dial reading:

(+) Reading _____ mils _____

I. 8. y. (8) Slowly rotate the Test Handle on top of the TBWD Housing in the "-" direction UNTIL the TRIP POINT light goes off. _____

(9) Record the dial reading:

(+) Reading _____ mils _____

NOTE

The TRIP POINT light should go off approximately 10 mils less than the value when the TRIP POINT light came on.

(10) Slowly rotate the Test Handle on top of the TBWD Housing in the "-" direction UNTIL the TRIP POINT light comes on. _____

(11) Record the dial reading:

(-) Reading _____ mils _____

(12) Slowly rotate the Test Handle on top of the TBWD Housing in the "+" direction UNTIL the TRIP POINT light goes off. _____

(13) Record the dial reading:

(-) Reading _____ mils _____

NOTE

The TRIP POINT light should go off approximately 10 mils less than the value when the TRIP POINT light cam on.

(14) Slowly rotate the Test Handle on top of the TBWD Housing in the "+" direction UNTIL zero (0) is indicated on the dial. _____

(15) IF the readings in the (+) AND (-) directions are NOT within 2 mils, THEN return to Step I.8.y for further adjustment. _____

I. 8. z. WHEN NO further adjustment is required, THEN verify the following:

(1) Local dial indicates zero (0). _____

(2) Local TRIP POINT light is off. _____

CAUTION

IF the NORMAL-TEST switch is placed in NORMAL before TRIP POINT light is off, THEN the Unit will trip in approximately 3 to 5 seconds.

aa. Place NORMAL-TEST switch in NORMAL.

ab. Verify annunciator 902(3)-7, THRUST BRG WEAR DETECTOR TEST, clears.. _____

ac. Perform Step I.5 to verify local and remote readings are approximately the same. _____

ad. IF the local and remote readings are NOT approximately the same OR the setpoint CANNOT be adjusted to the proper setting, THEN generate an Action Request to troubleshoot/repair the TBWD. _____

Comments:

_____

_____

_____

_____

J. DISCUSIION:

NONE.

W. WRITER'S REFERENCES:

1. GEK-5551A, Volume I, Turbine Section.

a. Tab 3, GEK-17812E, Periodic Operational Test Summary (Mark I).

b. Tab 3, GEK-17913, Automatic Pump Starting Three Pressure Switch Arrangement Weekly.

c. Tab 3, GEK-17838A, Automatic Pump Starting Monthly.

d. Tab 3, GEK-17813, Lift Pump Testing - Monthly.

W. 1. e. Tab 11, GEK-17917B, Thrust Bering Wear Detector with Electrical Tripping of the Turbine and Remote Testing.

f. Tab 12, GEK-46506B, Turbine Lube Oil (Recommended Properties & Maintenance Practices).

g. Tab 13, GEK-46355E, Hydraulic Power Unit for Electro - Hydraulic Control Systems.

2. GEK-5551, Volume II, Generator Section.

a. Tab 26, GEY-23, Oil Filter Construction and Operation.

b. Tab 29, GEI-74478, Periodic Operational Inspection, Lubrication and Tests Hydrogen System.

c. Tab 33, GEU-74477, Periodic Operation Inspection, Lubrication and Tests Armature Liquid Cooling System.

3. GEK-5551, Volume III, Turbine EHC and TSI Section.

a. Tab 41, GEK-11366, Protective System - Electrohydraulic Control Basic Functions.

b. Tab 43, GEK-11354, Power-Load Unbalance Circuit and Relays.

c. Tab 43, GEK-37941, Valve Test Logic (BWR).

4. Letter from J. Nash to J. Williams, 23 June 1989, Recommendations for Enhanced Turbine Thrust Bearing Monitoring.

5. OPEX 909-351-90-02100, "Quad Cities Unit 2 DVR 04-02-89-019, Reactor Scram While Testing Turbine Master Trip Solenoid," June 4, 1990 (NTS Commitment # 237-351-90-02101).

6. NTS Item # 237-402-90-01001.

7. NTS Item # 237-200-91-09401.

8. NTS 237-100-91-02501E-02, I.R. 237/91025 Procedure Revisions Required to Complete Safety Related Contact Testing Program.

9. 237-200-95-26105, Turbine Panel Pushbutton Nomenclature.

Nuclear Generation Group

Job Performance Measure

Perform Daily/Weekly CRD Exercise (with timer malfunction)

JPM Number: B.1.g

Revision Number: 00

Date: 12/06/00

Author: _____ 12/7/00
Date

Facility Representative: _____ 12/7/00
Date

LICENSED OPERATOR REQUAL
JOB PERFORMANCE MEASURE
B.1.g Rev. 00 (12/00)

Examinee Information

Examinee's Name : _____ **Date :** _____

Time Started : _____ **Time Completed :** _____

Evaluator Name : _____

JPM Information

Standard [ ] Faulted [ ] Alternate Path [x] Time Critical [ ]

Task Title : Perform Daily/Weekly CRD Exercise
Task Number: 201L006
Procedure : DOS 0300-01, DOA 0300-12
Procedure Rev : 27, 08

Task Standards : Respond to mispositioned control rod (inserted greater than one notch, @ greater 20% power, for less than 10 minutes) during CRD Exercising by continuously inserting the control rod to position 00.

Validated Time : 16 minutes **Time Critical:** No

Evaluation Method : Perform **Evaluation Location :** Simulator

K & A Number : 201002A2.01 **K & A Rating :** 2.7 / 2.8

Exam Results

1. **Did the examinee complete all the critical steps?** **Yes** _____ **No** _____
2. **Was the JPM completed within the validated time?** **Yes** _____ **No** _____
3. **Did the examinee pass the JPM?** **Yes** _____ **No** _____
4. **Is remediation recommended (req'd. if # 3 marked No)** **Yes** _____ **No** _____
5. **List below any weaknesses noted :**

_____
_____
_____
_____

6. **List below remediation recommended by the evaluator :**

_____
_____
_____
_____

Revision Record (Summary)

Rev. 00	**Initial Issue**

Initial Conditions

1. IC-12
2. ROD EXERCISE function of the Rod Worth Minimizer is enabled.

Remotes/Alarms Required

None

Malfunction Required

S M RDRMCSTF
Inserts RMCS timer malfunction

R M RDRMCSTF
Removes RMCS timer malfunction

Task Conditions (Read to Examinee)

Note: Prior to reading task conditions give examinee a copy of DOS 0300-01, marked up and filled out for all control rods at Position 00.

1. The Unit 2 Control Rod Exercise surveillance is in progress.
2. Stall flows are not scheduled for this surveillance.
3. CRD exercises have been completed for all control rods at Position 00.

Initiating Cues (Read to Examinee)

1. You are the Unit 2 NSO.
2. The Unit 2 Supervisor directs you to complete DOS 0300-01 for all control rods at Position 48.
3. Assume that a verifier is present for the control rod movements.
4. The Shift Manager and the QNE are in the control room.

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
Note: The following steps 1 – 4 are for DOS 0300-01, step 6.a: "Insert control rod one notch."				
* 1. Select a control rod at Position 48 on the Rod Select Matrix.	Control rod at Position 48 selected on the Rod Select Matrix. a. Pushbutton on Rod Select Matrix depressed for control rod. b. Pushbutton illuminated.	____	____	____
2. Verify that the control rod position displayed on the Four Rod Display AND the Full Core Display is correct.	Verifies control rod position displayed on the Four Rod Display AND the Full Core Display is at 48.			
3. Verify that the ROD OUT PERMIT light is illuminated.	Verifies ROD OUT PERMIT light (white) is illuminated.	____	____	____
* 4. Move the ROD MOVEMENT CONTROL switch to the ROD IN position AND release (switch spring returns to OFF).	ROD MOVEMENT CONTROL switch moved to the ROD IN position and released.	____	____	____
Note: Control rod will insert past position 46 due to RMCS timer malfunction. **REMOVE** RMCS timer malfunction **after** control rod has passed Position 44. (Control rod should settle at Position 42 or 40.)				
5. Verify indicated control rod position changes during movement.	Verified control rod position changed from 48 to 46 on the Four Rod Display and the Full Core Display during movement.	____	____	____
* 6. Recognize control rod is inserted greater than one notch.	Observes on the Four Rod Display and the Full Core Display that control rod inserts beyond Position 46.	____	____	____
7. Acknowledge annunciator 902-5 D-3, TIMER MALFUNCTION SEL BLOCK.	Annunciator acknowledged by depressing RED acknowledge button on Panel 902-5.	____	____	____
8. Announces entry into DOA 0300-12, Mispositioned Control Rods.	Entry into DOA 0300-12 announced.	____	____	____
Note: The step below is the immediate action for DOA 0300-12.				

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
* 9. Discontinue all control rod movement and recirculation flow increases AND immediately notify the Unit Supervisor.	Control movement discontinued and Unit Supervisor notified.	____	____	____
CUE: Acknowledge report.				
10. Determine Rx power >20%.	Observers Rx power on APRM meters.	____	____	____
* 11. Continuously insert the mispositioned control rod to Position 00.	Mispositioned control rod inserted to Position 00 by moving the RONOR switch to EMER IN and releasing after the control rod has reached position 00. OR Moving Rod Movement Control Switch to Rod In and releasing after the control rod has reached position 00.	____	____	____
12. Determine length of time since mispositoning.	Determines that time since mispositioning is ≤ 10 minutes.	____	____	____
13. Contact the Shift Manager and QNE.	Shift Manager and QNE notified.	____	____	____
CUE: Acknowledge report as Shift Manager and QNE. Suspended the surveillance pending evaluation by QNE. The extra NSO will complete the remaining steps of DOA 0300-12.				
	END			

EXAMINEE COPY

Task Conditions

1. The Unit 2 Control Rod Exercise surveillance is in progress.
2. Stall flows are not scheduled for this surveillance.
3. CRD exercises have been completed for all control rods at Position 00.

Initiating Cues

1. You are the Unit 2 NSO.
2. The Unit 2 Supervisor directs you to complete DOS 0300-01 for all control rods at Position 48.
3. Assume that a verifier is present for the control rod movements.
4. The Shift Manager and the QNE are in the control room.

CONTROL ROD EXERCISE

REQUIREMENTS:

Technical Specifications Section:

4.0.E, Section XI Surveillance Requirements.

4.3.C, Control Rod Operability.

4.3.I.2, Control Rod Position Indication System.

4.3.H.2, Control Rod Drive Coupling.

INDEPENDENT TECHNICAL REVIEW

Disciplines Required:	NPPT	RO	RE/QNE	CH	RS	I&C	M&ES
	[X]	[X]	[X]	[ ]	[ ]	[ ]	[X]

Unit 1 Review Required: [ ] YES [X] NO

Special Reviews:

IST Coordinator.

PLANT OPERATIONAL REVIEW COMMITTEE (PORC):

PORC REQUIRED [ ] YES [X] NO

APPROVAL AUTHORITY: Shift Operations Supervisor (SOS), or designee

POST PERFORMANCE REVIEWS:

IST Coordinator.

OCT 28 1999

EFFECTIVE DATE

A. PURPOSE:

1. To exercise all operable control rods to minimize possibility of control rods sticking due to infrequent use which may determine condition of CRD seals. Guidance is also provided for flushing CRD collet seals for control rods that are difficult to move.

2. © To demonstrate operability of the following CRD System components (typical of 177) to satisfy ASME Section XI IST Program testing requirement: ©(W-1, W-7)

- 2(3)-0305-120, HCU Control Rod Drive Withdrawal Exhaust Water Valve. (exercise closed and fail safe test)
- 2(3)-0305-121, HCU Control Rod Drive Insert Exhaust Water Valve. (exercise closed and fail safe test)
- 2(3)-0305-122, HCU Control Rod Drive Withdrawal Drive Water Exhaust Water Valve. (exercise closed and fail safe test)
- 2(3)-0305-123, HCU Control Rod Drive Insert Drive Water Supply Valve. (exercise closed and fail safe test)
- 2(3)-0305-138, HCU Cooling Water Ball Check Valve. (exercise closed test)

B. USER REFERENCES:

1. Updated Final Safety Analysis Report:

   a. 4.6.1, Functional Design of Reactivity Control Systems Design Basis.

   b. 4.6.3, Information for Control Rod Drive System.

2. Technical Specification Sections:

   a. 4.0.E, ASME Section XI Surveillance Requirements.

   b. 4.3.C, Control Rod Operability.

   c. 4.3.I.2, Control Rod Position Indication System.

   d. 4.3.H.2, Control Rod Drive Coupling.

B. 3. Procedures:

a. DAP 11-21, In-service Testing Program for Pumps and Valves.

b. DGP 03-04, Control Rod Movements.

c. DOA 0300-05, Inoperable or Failed Control Rod Drives.

d. DOA 0300-06, RPIS Failure.

e. DOA 0300-12, Mispositioned Control Rod.

f. DOP 0400-01, Reactor Manual Control System Operation.

g. DOP 0400-02, Rod Worth Minimizer.

h. DOP 9900-07, Control Rod Position (OD-7).

i. DOS 0300-06, Control Rod Drive Abnormality Record.

C. SUPPLEMENTS:

1. Checklist 1, CRD Exercise Checklist.

2. Checklist 2, CRD Stall Flow Checklist.

D. EQUIPMENT REQUIRED:

NONE.

E. PREREQUISITES:

		INITIALS
1.	The unit is at the required power level per the CRSP for performance of this surveillance.	ABC
2.	The ROD EXERCISE function of the Rod Worth Minimizer is enabled (DOP 0400-02).	ABC
3.	IF the ROD EXERCISE function is not available, THEN RWM rod block must be disabled OR the RWM must be bypassed.	N/A
4.	IF stall flows are scheduled, THEN the System Engineer has notified the Unit Supervisor which control rods require stall flow data.	N/A
5.	Control Rods that do not require stall flow data are marked N/A on Checklist 2.	N/A