REGISTER NUMBER 72

To All Manual Holders:

Attached please find DSSP procedures to be placed into your manual. Please insert these procedures into your manual, completely fill out DAP form 9-2A (including your register number, signature and date.) Return these forms to the Procedures Coordinator.

040061

A045
0/1

NUCLEAR STATION PROCEDURE ROUTING

(TRANSMITTAL RECEIPT)

Register No. (41) 2-2-93 PC

REMOVE: * DSSP 0100-D rev 03

INSERT: * DSSP 0100-D rev 04
posted procedure: please post in
the Safe Shutdown Cart)

(Sign and return this form to the DOSR CLERK.)

I hereby acknowledge receipt of the above.

Signed _____ Date _____

ZM/4940

FORM 9-2B

PROCEDURE HISTORY

Procedure Number: DSSP 0100-D Rev. No.: ~~05~~ 04 8/23/92

Posted Procedure Locations: ~~N/A~~ See 12-22-92
Safe Shutdown Cart by Bus 25

Supportive References (letters, temporary change request, commitments, analysis): Safe Shutdown Report, Dresden Units 2 and 3 (Fire Protection Program Documentation Package, Volume 3, Book 1); 10 CFR 50, Appendix R; 10 CFR 50.54x; NRC Information Notice 87-50. TCR 92-297.

Subject experts or other personnel contacted: None

Description and JUSTIFICATION for procedure or change: Upgrade to the requirements of DAP 09-03. Add applicable sections and references. Complete re-write to comply with specifications of DAP 09-03 and Safe Shutdown Report, including major format change. Added attachments for actions of individual plant personnel. All original steps are included in procedure. Added additional steps for:

1. U3 NSO verify Unit 3 DG start from CR if indication available.
2. U2 Outside HVO to start Unit 3 DG per DSSP 0200-T2 if no auto start.
3. Incorporated commitment NRC IEN 87-50, RWCU isolation, isolate air.
4. Incorporated TCN 92-297.

Added additional instruments for local monitoring of RPV ~~lvl~~/press. Changed equipment nomenclature to match in plant labeling. Provided cubicle numbers for breakers. Added procedure tracking checklist for shift engineer. Changed procedure to direct performance of attachments.

DSSP

DRESDEN SAFE SHUTDOWN PROCEDURES

Proc. No.	Title	Rev. No.	DOSR Date	Review Date
010-1	Safe Shutdown Paths for Extensive Plant Damage	Rev. 2	9/89	9/91
0100-A	Hot Shutdown Procedure - Path A	Rev. 04	12/92	12/94
0100-A1	Hot Shutdown Procedure - Path A-1	Rev. 04	12/92	12/94
0100-B	Hot Shutdown Procedure - Path B	Rev. 04	12/92	12/94
*0100-B1	Hot Shutdown Procedure - Path B1	Rev. 04	12/92	12/94
0100-A2/B2	Hot Shutdown Procedure Path A2/B2	Rev. 04	6/92	6/94
*0100-C	Hot Shutdown Procedure - Path C	Rev. 05	12/92	12/94
*0100-CR	Control Room Evacuation/Safe Shutdown (Primary Responsibility - Operations Director)	Rev. 02	6/92	6/94
*0100-D	Hot Shutdown Procedure - Path D	Rev. 04	2/93	2/95
*0100-E	Hot Shutdown Procedure - Path E	Rev. 06	2/93	2/95
100-E1	Hot Shutdown Procedure Path E1	DELETE	4/88	
0100-F	Hot Shutdown Procedure - Path F	Rev. 04	6/92	6/94
100-F1	Hot Shutdown Procedure Path F1	DELETE	4/88	
*0200-L	LPCI/CCSW Cold Shutdown Method	Rev. 02	2/93	2/95
200-S	Shutdown Cooling Cold Shutdown Method (SDC)	Rev. 1	4/88	4/90

HOT SHUTDOWN PROCEDURE - PATH D

Requirements:

1. 10 CFR 50, Appendix R.
2. 10 CFR 50.54x.
3. Safe Shutdown Report, Dresden Units 2 and 3 (Fire Protection Program Documentation Package, Volume 3, Book 1).

Special Controls/Reviews:

Posted Procedure - This is a Controlled Posted Procedure. Any authorized change will be brought to the attention of the Department Supervisor or an Operating Engineer, as applicable.

M. Walls
Originator

T. Koppen
Independent Reviewer/Verifier (If Applicable)

S. Mattson
Department Procedure Writer

R. Stachniak
Department Supervisor

APPROVED
FEB 02 1993
D.O.S.R.

HOT SHUTDOWN PROCEDURE - PATH D

A. PURPOSE:

1. This procedure provides guidelines to achieve Dresden U3 hot shutdown, directed from the Control Room, using Hot Shutdown Path D following a fire in which critical plant components were rendered inoperable.

2. This procedure uses the following components:

   - Unit 3 High Pressure Coolant Injection (HPCI) System.
   - U3 Diesel Generator (D/G) and U3 electrical power train.

B. USER REFERENCES:

1. DOP 1500-2, Torus Water Cooling Mode of Low Pressure Coolant Injection System.
2. DOP 2300-3, High Pressure Coolant Injection System Manual Startup and Operation.
3. DOP 6600-02, Diesel Generator 2(3) Startup.
4. DSSP 0010-01, Determining Safe Shutdown Paths.
5. DSSP 0100-T11, Cooldown Tables.
6. DSSP 0100-T14, Minimum CST Inventory for RPV Makeup.
7. DSSP 0200-T2, Diesel Generator 2(3) Local Manual Start.

C. SUPPLEMENTS:

1. Attachment A, U3 NSO Actions.
2. Attachment B, U3 SS Actions.
3. Attachment C, U3 EA Actions.
4. Attachment D, Outside HVO Actions.
5. Attachment E, Center Desk NSO Actions.
6. Checklist A, Shift Engineer Tracking.

D. PREREQUISITES:

1. Applicable portion of DSSP 0010-01 has been completed.
2. Shift Engineer has directed performance of this procedure.

E. PRECAUTIONS:

1. Fire damage may cause spurious events to occur and/or require the manual operation of various components.
2. In worst case conditions, reactor vessel makeup and decay heat removal must be initiated within 30 minutes of initiating event.

E. 3. When using radios, radio should be held in hand. Using coil-cord microphone may impair reception.

- Direct radio contact may not be possible. In such cases, required communications must be relayed.

4. Due to damage to security multiplexer cables, normal entrance through security doors may be prevented.

5. This procedure should be followed only in the event that normal or emergency procedures are insufficient.

F. LIMITATIONS AND ACTIONS:

1. Keys for high rad areas, CB locks, and security doors are obtained from the Shift Engineer's office as necessary.

2. Keys for high-high rad areas are obtained from the Rad-Chem office as necessary.

3. Copies of DSSPs, radios, flashlights, protective clothing, masks/air packs, pyrometers, etc., are obtained from Safe Shutdown Equipment Cart (near BUS 25, north of Auxiliary Electric Equipment Room).

4. Steps in this procedures are based on analysis of each component used considering severe fire damage in any fire area of the plant.

- Under any given fire situation, total functional loss of all equipment in a fire area may not occur.

- This procedure should be performed at the discretion of the Shift Engineer, or other qualified Senior Reactor Operator serving as the Controlling Supervisor.

5. Certain steps or conditions within this procedure may contradict normal license conditions or Technical Specification requirements, as stated in 10 CFR 50.54x:

> "A licensee may take reasonable action that departs from a license condition or Technical Specification requirements in an emergency when this action is immediately needed to protect the public health and safety and no action consistent with the license conditions and Technical Specifications that can provide adequate or equivalent protection is immediately apparent."

This action "shall be approved, as a minimum, by a licensed Senior Reactor Operator (SRO) prior to taking the action."

G. PROCEDURE:

NOTE

1. U3 Nuclear Station Operator (NSO) will normally coordinate actions of other shift personnel, under direction of Shif' Engineer, after initial actions are complete.

2. Initial actions of U3 NSO (Nuclear Station Operator), U3 Shift Supervisor (SS), Outside High Voltage Operator (HVO), and U3 Equipment Assistant (EA) are perfcrmed concurrently.

3. Checklist A, Shift Engineer Tracking, is provided to assist in tracking procedure progress.

1. Direct U3 NSO to enter Attachment A, U3 NSO Actions, and perform required actions.

2. Direct U3 SS (Shift Supervisor) to enter Attachment B, U3 SS Actions, and perform required actions.

3. Direct U3 EA (Equipment Assistant) to enter Attachment C, U3 EA Actions, and perform required actions.

4. Direct Outside HVO (High Voltage Operator) to enter Attachment D, Outside HVO Actions, and perform required actions.

5. Direct Center Desk NSO to obtain a copy of Attachment E, Center Desk NSO Actions, in preparation for required actions.

6. Check procedure progress on Checklist A, Shift Engineer Tracking.

H. DISCUSSION:

1. This procedure is developed with attachments for shift personnel having actions to perform, with the main procedure body developed for the Shift Engineer or other qualified, licensed Senior Reactor Operator in control of evolutions performed.

2. Checklist A, Shift Engineer Tracking, is provided to the Shift Engineer to assist in tracking plant condition and status for major evolution completion during performance of the procedure.

3. Attachment A, U3 NSO Actions, provides an overview of the evolutions being performed and the approximate seguence, once initial actions have been performed. Details of specific actions are given in the appropriate shift personnel attachments.

W. WRITER'S REFERENCES:

1. NRC Information Notice No. 87-50, Potential LOCA at high and low pressure interfaces from fire damage.

2. Title 10 Code of Federal Regulations (CFR):

   a. 10 CFR 50, Appendix R.

   b. 10 CFR 50.54.

3. Safe Shutdown Report, Dresden Units 2 and 3 (Fire Protection Program Documentation Package, Volume 3, Book 1).

1. Manually scram reactor by depressing MANUAL SCRAM CH A AND MANUAL SCRAM CH B pushbuttons.

CAUTION
Open relief valves cause a loss of reactor vessel inventory.

2. Place ADS INHIBIT switch in INHIBIT.

3. Place Electromatic Relief Valve control switches in OFF:

- 3-203-3B, 3B ERV.
- 3-203-3C, 3C ERV.
- 3-203-3D, 3D ERV.
- 3-203-3E, 3E ERV.
- 3-203-3A, 3A TARGET ROCK.

4. Close Main Steam Isolation Valves (MSIVs):

- AO 3-203-1A, MSIV.
- AO 3-203-1B, MSIV.
- AO 3-203-1C, MSIV.
- AO 3-203-1D, MSIV.
- AO 3-203-2A, MSIV.
- AO 3-203-2B, MSIV.
- AO 3-203-2C, MSIV.
- AO 3-203-2D, MSIV.

5. Report completion of initial actions to Shift Engineer.

NOTE
U3 SS first actions are to remove power from MO 3-1201-2, INLET ISOL, and MO 3-1201-3, AUX PP SUCT. RWCU isolation should be verified quickly before power to the valves is removed.

CAUTION
Automatic RWCU isolation may not occur.

6. © Ensure RWCU Isolation by verifying ONE of the following valve lineups:

   A. MO 3-1201-1, RX OUTLET ISOL, closed,
      AND
      MO 3-1201-1A, RX OUTLET BYP, closed.

   OR

   B. MO 3-1201-2, INLET ISOL, closed,
      AND
      MO 3-1201-3, AUX PP SUCT, closed. © (W-1).

7. IF RWCU valve positions cannot be verified from Control Room, THEN, direct Outside HVO (High Voltage Operator) to verify MO 3-1201-2, U3 RWCU AUX PMP BYP MOV, closed locally.

8. Notify Shift Engineer of RWCU isolation verification.

9. While monitoring RPV Level and Pressure using multiple indication, manually initiate HPCI to provide RPV makeup.

   - Use DOP 2300-3, High Pressure Coolant Injection System Manual Startup and Operation, as a guideline for initiation of the HPCI System.

10. Perform the following:

    - Maintain RPV water level at +8 inches to +40 inches.
    - Establish and maintain a cooldown rate of ≤ 15°F/hour (use DSSP 0100-T11, Cooldown Tables).
    - Record level and pressure at 10 minute intervals on DSSP 0100-T11.

11. IF Control Room RPV Pressure and Level indication is NOT available, THEN direct Center Desk NSO to monitor reactor pressure and level locally per Attachment E, Center Desk NSO Actions.

12. Place control switches in PULL-TO-LOCK to remove loads from BUS 34-1:

    - 3B SDC PP.
    - 3C SDC PP.
    - 3B CORE SPRAY PP.
    - 3B RWCU RECIRC PP.
    - BUS 34-1 & BUS 24-1 ACB.

13. Verify BUS 34-1 TO TR 39 ACB and TR 39 To BUS 39 breakers closed.

14. IF off-site power is available, THEN verify breakers aligned as follows:

    - U3 D/G TO BUS 34-1 ACB, open.
    - BUS 34 & BUS 34-1 TIE ACB, closed.
    - Bus 34-1 to Bus 34 Tie Breaker, closed.

15. IF offsite power is not available, THEN perform the following:

    A. Verify BUS 34-1 & BUS 34 TIE ACB breaker open.

    B. Place control switches in PULL-TO-LOCK to remove BUS 34 loads:

       - 3C COND/BOOST PP.
       - 3D COND/BOOST PP.
       - 3C CIRC WTR PP.
       - 3B CRD PP.
       - 2/3 SW PP.
       - BUS 34 TO TR 30 ACB.
       - BUS 34 TO TR 37 ACB.

15. C. Verify BUS 34 aligned as follows:

- TR 31 TO BUS 34 ACB, open.
- TR 32 TO BUS 34 ACB, open.

D. Verify U3 D/G auto-start and U3 D/G TO BUS 34-1 ACB closed using Control Room indication and alarms.

- IF Control Room Indication is not available, THEN direct Outside HVO to verify U3 D/G auto-start and auxiliaries.

E. Close BUS 34 & BUS 34-1 TIE ACB closed.

16. Direct U3 SS to verify proper BUS 34-1 configuration locally.

17. Direct Center Desk NSO to verify proper BUS 34 configuration locally.

18. Notify Shift Engineer BUS 34-1 and BUS 34 configured.

19. Initiate Torus Cooling, using CCSW and LPCI B Loop (3C and 3D LPCI Pumps) in the Torus Cooling Mode.

NOTE

3-1501-3B, U3 CNMT CLG HX B TUBE SIDE DISCH MOV, will require manual operation due to electric power being removed to prevent spurious operation.

- Use DOP 1500-2, Torus Water Cooling Mode of Low Pressure Coolant Injection System, as a guide for LPCI/CCSW System Initiation.

20. Monitor Torus parameters on the following instruments, as available:

- TORUS LVL, LI 3-1602-3 (narrow range).
- TORUS LVL, LI 3-1640-10A (wide range).
- TORUS LVL, LI 3-1640-10B (wide range).
- TORUS BULK TEMP, TR 3-1641-9.

21. IF Torus Level and Temperature are not available, THEN direct U3 EA to monitor Torus Level and Temperature locally.

NOTE

CST level can be monitored in U2 Rx Feed Pump Room if Control Room indication is not available.

22. Request U2 NSO to monitor 2/3 A(B) CST LVL, LI 2/3 3340-3(4).

23. Verify HPCI Suction transfers from 2/3 B CST to Torus when EITHER of the following conditions are met:

- 2/3 B CST Level 10,000 gallons,

OR

- Torus Level +5 inches.

1. At RBX 250Vdc MCC 3A, open the following load breakers:

   - Cubicle E-1, 3-220-2 U3 MAIN STEAM LINES OTBD DRAIN VLV.
   - Cubicle E-2, 3-1001-2A U3 SHUTDOWN COOLING PUMP 3A SUCTION MO VLV.
   - Cubicle F-1, 3-1001-2B U3 SHUTDOWN COOLING PUMP 3B SUCTION MO VLV.
   - Cubicle F-2, 3-1001-2C U3 SHUTDOWN COOLING PUMP 3C SUCTION MO VLV.

NOTE

U3 NSO actions are to verify RWCU isolation. Time should be allowed for U3 NSO to check valve position prior to opening breakers G-1 and G-2.

   - Cubicle G-1, 3-1201-2 U3 RWCU AUXILIARY PUMP BYPASS MO VLV.
   - Cubicle G-2, 3-1201-3 U3 RWCU AUXILIARY PUMP SUCTION MO VLV.
   - Cubicle H-1, 3-1301-3 U3 ISOL CDSR COND OUTLET OTBD ISOL VLV.
   - Cubicle H-2, 3-1301-2 U3 ISOL CDSR STEAM INLET OTBD ISOL VLV.
   - Cubicle I-1, 3-1001-4A, U3 SHUTDOWN COOLING HX 3A OUTLET MO VLV.
   - Cubicle I-2, 3-1001-4B, U3 SHUTDOWN COOLING HX 3B OUTLET MO VLV.

2. At RBX 250Vdc MCC 3B, open the following load breakers:

   - Cubicle J-2, 3-1001-4C, U3 SHUTDOWN COOLING HX 3C OUTLET MO VLV.
   - Cubicle M-1, 3-1301-10 U3 ISOL CDSR CNTAM DEMIN WATER FILL STOP VLV.
   - Cubicle N-1, 3-4102 U3 ISOL CDSR FIRE SYSTEM FILL STOP VLV.

3. Perform the following at U3 125Vdc Buses to remove Electromatic Relief Valve and Target Rock power:

   A. IF U3 125Vdc Buses are accessible, THEN perform the following to remove reactor relief valve power:

      - Open Breaker 9, PANEL 2203-32 (NORMAL FEED) SAFETY RELIEF VALVE CONTROL POWER, on U3 125VDC RX BLDG DIST PANEL #3 (RBX third floor inside RBX 250Vdc Bus).
      - Open Breaker 7, PANEL 2203-32 (ALTERNATE FEED) SAFETY RELIEF VALVE CONTROL POWER, on U3 125VDC TURB BLDG RESERVE BUS 3B-1 DISTR PANEL (ESS DIV II) (inside U3 dc Distribution Room).

NOTE

Step 3.B if required, may be performed after completion of Step 5.

   B. IF U3 125Vdc Buses are NOT accessible, THEN pull fuses F-1 through F-20 in Panel 2203-32 (RBX second floor by Instrument Rack 2203-5) to remove relief valve power.

4. Align SWGR 39 (RBX third floor, south) as follows:

A. Pull control power fuses for breakers listed in Step 4.B.

B. Manually trip the following breakers on SWGR 39:

- Cubicle A-1, 3-5734C 3C DRYWELL COOLER.
- Cubicle A-2, 3-5734D 3D DRYWELL COOLER.
- Cubicle A-3, 3-5734E 3E DRYWELL COOLER.
- Cubicle A-4, 3-7839-5/6 480V REACTOR BUILDING MCC 39-5 & 39-6.
- Cubicle B-1, 3-5702B 3B SOUTH TURBINE BLDG SUPPLY FAN.
- Cubicle B-2, 3-5703B 3B REACTOR BUILDING SUPPLY FAN.
- Cubicle B-3, 3-5704B 3B REACTOR BUILDING EXHAUST FAN.
- Cubicle B-4, 3-5704C 3C REACTOR BUILDING EXHAUST FAN.
- Cubicle C-1, 3-5701B 3B MOTOR GENERATOR SETS SUPPLY FAN.
- Cubicle C-2, 3-7839-3 480V REACTOR BUILDING MCC 39-3.
- Cubicle C-4, 2-7826-4 480V TURBINE BUILDING MCC 26-4 RESERVE FEED.
- Cubicle D-1, 3-1902B 3B FUEL POOL COOLING PUMP.
- Cubicle D-3, 3-81-903-63 120/240V AC UNINTERRUPTABLE POWER SUPPLY PNL 903-63.
- Cubicle E-3, 3-7339 BUS TIE TO SWGR 38.

NOTE

Maintenance handle and ratchet for manually closing 480V breakers are located in Safe Shutdown Equipment box at SWGR 38.

C. Verify the following SWGR 39 breakers are closed:

- Cubicle C-3, 3-7839-7 480V REACTOR BUILDING MCC 39-7.
- Cubicle D-2, 3-7839-1 480V REACTOR BUILDING MCC 39-1.
- Cubicle D-4, 3-7839-2 480V TURBINE BUILDING MCC 39-2.
- Cubicle E-2, MAIN FEED FROM BUS 34-1.

D. Pull control power fuses for breakers listed in Step 4.C.

E. Report SWGR 39 aligned to U3 NSO and Shift Engineer.

CAUTION

MCC 39-7 is also supplied from MCC 38-7.

5. Perform the following at SWGR 38 (across from SWGR 39):

   A. Pull control power fuses for Cubicle B-1.

   B. Open Cubicle B-1, 3-7838-7 480V REACTOR BLDG MCC 38-7, breaker.

6. At U2 TBX 250Vdc MCC #2, verify breakers are closed:

   - Cubicle A-1, 2-8350 U-2 250VDC BATTERY TO MAIN BUS #2.
   - Cubicle I-2, U3 250VDC REACTOR BUILDING MCC #3B (MAIN FEED).

7. Report dc Systems aligned to U3 NSO and Shift Engineer.

NOTE

Safe Shutdown Pushbutton is located in Safe Shutdown Equipment Box between Bus 33-1 and 34-1 (RBX Second floor south).

8. WHEN notified by U3 NSO, THEN verify BUS 34-1 configuration locally. (IF breakers require positioning, THEN operate breakers using the Safe Shutdown Pushbutton or local close pushbutton):

   A. IF offsite power is AVAILABLE, THEN verify the following Bus 34-1 configuration:

      - Cubicle 1, 2-6724-1 BUS 24-1 TIE, closed.
      - Cubicle 3, 3-1205B 3B REACTOR WATER CLEANUP RECIRCULATION PUMP, open.
      - Cubicle 6, 3-7339 REACTOR BUILDING 480V SWGR 39, closed.
      - Cubicle 7, 3-6601 STANDBY DIESEL GEN 3 FEED, open.
      - Cubicle 9, 3-1401B 3B CORE SPRAY PUMP, open.
      - Cubicle 10, 3-1002B 3B SHUTDOWN COOLING PUMP, open.
      - Cubicle 12, MAIN FEED FROM BUS 34, closed.
      - Cubicle 14, 3-1002C 3C SHUTDOWN COOLING PUMP, open.

8. B. IF offsite power is NOT AVAILABLE, THEN verify the following Bus 34-1 configuration:

- Cubicle 1, 2-6724-1 BUS 24-1 TIE, closed.
- Cubicle 3, 3-1205B 3B REACTOR WATER CLEANUP RECIRCULATION PUMP, open.
- Cubicle 6, 3-7339 REACTOR BUILDING 480V SWGR 39, closed.
- Cubicle 7, 3-6601 STANDBY DIESEL GEN 3 FEED, closed.
- Cubicle 9, 3-1401B 3B CORE SPRAY PUMP, open.
- Cubicle 10, 3-1002B 3B SHUTDOWN COOLING PUMP, open.
- Cubicle 12, MAIN FEED FROM BUS 34, open.
- Cubicle 14, 3-1002C 3C SHUTDOWN COOLING PUMP, open.

C. Notify U3 NSO BUS 34-1 verification complete.

1. Open and rack out the following MCC 39-1 breakers (RBX ground level opposite west HCUs):

   - Cubicle A-3, 3-7839-1 120/208V DISTRIBUTION TRANSFORMER.
   - Cubicle B-2, 3-5708B 3B DRYWELL AND TORUS PURGE EXHAUST FAN.
   - Cubicle D-1, 3-0302-8 U3 CRD SYSTEM DRIVE WATER PRESSURE CONTROL VALVE.
   - Cubicle D-2, 3-8551B 3B PUMP BACK COMPRESSOR.
   - Cubicle E-2, 3-1501-3B U3 CNMT COOLING HX B TUBE SIDE DISCHARGE MO VLV.
   - Cubicle E-4, 3-14-2-38B 3B CORE SPRAY PUMP MINIMUM FLOW VLV.
   - Cubicle F-2, 3-7902 REACTOR BUILDING EMERGENCY LIGHTING.
   - Cubicle F-4, 3-1102B 3B STANDBY LIQUID CONTROL PUMP.
   - Cubicle G-3, 3-2501 UNIT 3 ACAD AIR COMP.
   - Cubicle H-1, 3-1402-24B 3B CORE SPRAY PUMP UPSTREAM INJECTION VLV.
   - Cubicle H-2, 3-1402-25B 3B CORE SPRAY PUMP DOWNSTREAM INJECTION VLV.
   - Cubicle H-4, 3-1402-3B 3B CORE SPRAY PUMP SUCTION VLV FROM TORUS.
   - Cubicle J-1, 3-1402-4B 3B CORE SPRAY PUMP TEST VLV.
   - Cubicle J-3, 3-2001-511A 3A WEST LPCI/CS ROOM SUBMERSIBLE SUMP PUMP.
   - Cubicle J-4, 3-2001-510B 3B EAST LPCI/CS ROOM SUBMERSIBLE SUMP PUMP.
   - Cubicle J-5, 3-1401-4 U3 EMERGENCY CORE COOLING SYSTEM JOCKEY PUMP.

2. Open and rack out the following MCC 39-7 breakers (RBX ground level south):

   - Cubicle A-2, 3-5813 REFUELING FLOOR JIB CRANES.
   - Cubicle B-1, 3-0202-4B 3B RECIRC PUMP SUCTION VLV.
   - Cubicle B-2, 3-0202-5B 3B RECIRC PUMP DISCHARGE VLV.

3. Open and rack out ALL breakers on MCC 38-7 (East of MCC 39-7).

4. IF directed by U3 NSO to monitor Torus Level and Temperature locally, THEN perform the following in LPCI Southwest Corner Room:

   A. Monitor Torus Level locally at the Torus Level sightglass.

   B. Enter the Torus Area and monitor Torus by placing a surface pyrometer on the Torus.

   C. Report Torus Level and Temperature to U3 NSO.

1. Open and rack out the following MCC 39-2 breakers (TBX second floor west of Standby Gas Treatment):

   - Cubicle A1, 2/3 7506B 2/3 B TRAIN STANDBY GAS TREATMENT FAN.
   - Cubicle A5, 3-3319B 3B CONDENSATE TRANSFER PUMP.
   - Cubicle B1, 2/3-7505B B SBGT TRAIN INLET MO VLV.
   - Cubicle B5, 2/3-7507B B SBGT TRAIN FAN DISCHARGE MO VLV.
   - Cubicle C1, 3-7902 TURBINE ROOM 3 EMERGENCY LIGHTING.
   - Cubicle C3, 2/3-7503B 2/3 B TRAIN SBGT ELECTRIC AIR HEATER.
   - Cubicle D1, 2/3-7504B B SBGT TRAIN OUTSIDE AIR INLET MO VLV.
   - Cubicle D2, 3-7503 U3 RB VENT HEADER TO 2/3 SBGT INLET MO VLV.
   - Cubicle E2, 3-8001-B 3B RX PROTECTION MG SET.

2. Verify MCC 39-2 Cubicle D-3, 2/3-8350-2/3 2/3 250V BATTERY CHARGER, breaker is closed.

3. © IF directed by U3 NSO to verify RWCU Isolation locally, THEN perform the following:

   A. IF U3 RBX is accessible, THEN manually close MO 3-1201-2, U3 AUX PUMP BYP MOV, in RWCU pipe chase (entrance RBX 570).

   B. IF U3 RBX is not accessible, THEN verify closure of PCV 3-1217, U3 RWCU PCV, by removing instrument air to U3 RBX by closing 3-4705-504, INST AIR ISOL VLV TO THE U3 RX BLDG (TBX 517 by instrument air compressor). © (W-1)

4. IF/WHEN directed by U3 NSO to verify U3 D/G auto start and auxiliaries, THEN perform the following:

   A. Verify U3 D/G has started. IF U3 D/G has not started, THEN start U3 D/G per DSSP 0200-T2, Diesel Generator 2(3) Local Manual Start.

   B. WHEN U3 D/G output breaker has closed onto bus, THEN verify the following at 2253-47 U3 DIESEL GENERATOR AUXILIARY CONTROL Panel (inside U3 D/G Room, by door):

      - DIESEL 3 VENT FAN started.
      - DIESEL COOLING WATER PUMP 3 is running.

   C. Continue to operate 3 D/G in accordance with the requirements of DOP 6600-02, Diesel Generator 2(3) Startup.

NOTE

Safe Shutdown Pushbutton is located in Safe Shutdown Equipment Box between Bus 33-1 and Bus 34-1 (TBX mezzanine, northwest corner).

1. WHEN notified by U3 NSO, THEN verify BUS 34 configuration locally. (IF breakers require positioning, THEN operate breakers using the Safe Shutdown Pushbutton or local close pushbutton):

   A. IF offsite power is AVAILABLE, THEN verify Cubicle 3, 3-6734-1 U3 REACTOR BUILDING 4KV BUS 34-1, breaker closed on Bus 34.

   B. IF offsite power is NOT AVAILABLE, THEN verify the following Bus 34 breaker configuration:

      - Cubicle 1, MAIN FEED FROM UNIT AUXILIARY TRANSFORMER 31, open.
      - Cubicle 3, 3-6734-1 U3 REACTOR BUILDING 4KV BUS 34-1, closed.
      - Cubicle 4, 2/3-3901 2/3 SERVICE WATER PUMP, open.
      - Cubicle 5, 3-4401C 3C CIRCULATING WATER PUMP, open.
      - Cubicle 6, 3-302-3B 3B CONTROL ROD DRIVE WATER PUMP, open.
      - Cubicle 9, 3-7337 U3 TURBINE BUILDING 480V SWGR 37, open.
      - Cubicle 10, 3/3302D/3401D 3D CONDENSATE PUMP AND CONDENSATE BOOSTER PUMP, open.
      - Cubicle 11, RESERVE FEED FROM RESERVE AUXILIARY TRANSFORMER 32, open.
      - Cubicle 13, 3/3302C/3401C 3C CONDENSATE PUMP AND CONDENSATE BOOSTER PUMP, open.
      - Cubicle 15, 3-7330 CRIBHOUSE 480V SWGR 30, open.

   C. Notify U3 NSO BUS 34 verification complete.

2. IF directed by U3 NSO to monitor RPV level and pressure locally, THEN perform the following:

   A. Monitor RPV pressure and level at one of the following locations:

      - At INSTRUMENT RACK 2203-5 (RBX second floor) on PI 3-263-60A, U3 REACTOR PRESSURE, and LITS 3-263-59A, U3 REACTOR HIGH WATER LEVEL TRIP.

      OR

      - At INSTRUMENT RACK 2203-6 (RBX second floor) on PI 3-263-60B, U3 REACTOR PRESSURE, and LITS 3-263-59B, U3 REACTOR HIGH WATER LEVEL TRIP.

      OR

      - At INSTRUMENT RACK 2203-7 [RBX first floor behind Hydraulic Control Units (HCUs)] on PI 3-263-139A, U3 REACTOR PRESSURE JP #1 LP LINE, and LI 3-263-151A, U3 REACTOR WIDE RANGE LEVEL.

      OR

      - At INSTRUMENT RACK 2203-8 (RBX first floor behind HCUs) on PI 3-263-139B, U3 REACTOR PRESSURE JP #11 LP LINE, and LI 3-263-151A, U3 REACTOR WIDE RANGE LEVEL.

   B. Record level and pressure at 10 minute intervals on DSSP 100-T11, Cooldown Tables.

   C. Coordinate with U3 NSO to:

      - Establish and maintain a cooldown rate of ≤ 15°F/hour (use Saturation Temp/Press and Cooldown Rate Guidelines table of DSSP 100-T11, Cooldown Tables).

      - Maintain reactor level at +8 inches to +40 inches.

RESPONSIBLE	ACTION	√
	Initial Actions	
U3 NSO	Manual Scram ADS in INHIBIT ERVs/Target Rock in OFF Close MSIVs	
U3 SS	Align dc systems	
U3 SS	Align SWGR 39	
U3 SS	Align SWGR 38	
U3 EA	Align MCC 39-1	
U3 EA	Align MCC 39-7	
U3 EA	Align MCC 38-7	
OUTSIDE HVO	Align MCC 39-2	
U3 NSO	Verify RWCU Isolation	
U3 NSO	HPCI Initiation	
U3 NSO	Configure Bus 34-1	
U3 NSO	Configure Bus 34	
U3 NSO	Verify U3 D/G auto start, if applicable.	
U3 NSO	Initiate Torus Cooling	
U3 NSO	Stable Hot Shutdown condition	

REMARKS: _____

NUCLEAR STATION PROCEDURE ROUTING

(TRANSMITTAL RECEIPT)

Register No. (41) 2-2-93 PC

REMOVE: *DSSP 0100-E Rev 05

INSERT: *DSSP 0100-E Rev 06. (posted procedure: please post in the Safe Shutdown cart)

(Sign and return this form to the DOSR CLERK.)

I hereby acknowledge receipt of the above.

Signed _____ Date _____

ZM/4960

FORM 9-2B

PROCEDURE HISTORY

Procedure Number: DSSP 0100-E Rev. No.: 06

Posted Procedure Locations: ~~N/A~~ See 12-22-92 Safe Shutdown Card by Box 25

Supportive References (letters, temporary change request, commitments, analysis): Safe Shutdown Report, Dresden Units 2 and 3 (Fire Protection Program Documentation Package, Volume 3, Book 1); 10 CFR 50, Appendix R; 10 CFR 50.54x; NRC Information Notice 87-50. TCR 92-298.

Subject experts or other personnel contacted: None

Description and JUSTIFICATION for procedure or change: Upgrade to the requirements of DAP 09-03. Add applicable sections and references. Complete re-write to comply with specifications of DAP 09-03 and Safe Shutdown Report, including major format change. Added attachments for actions of individual plant personnel. All original steps are included in procedure except for checking 2B CRD and 2B SW pump breakers closed on initial bus lineup. These breakers are closed later in the procedure. Added additional steps for:

1. U2 NSO verify Unit 2 DG start from CR if indication available.
2. U2 EA to start Unit 2 DG per DSSF 0200-T2 if no auto start.
3. Incorporated commitment NRC IEN 87-50, RWCU isolation, isolate air.
4. Incorporated TCN 92-298.

Added additional instruments for local monitoring of RPV lvl/press. Changed equipment nomenclature to match in plant labeling. Provided cubicle numbers for breakers. Added procedure tracking checklist for shift engineer. Changed procedure to direct performance of attachments.

UNIT 2
*DSSP 0100-E
REVISION 06

HOT SHUTDOWN PROCEDURE - PATH E

Requirements:

1. 10 CFR 50, Appendix R.
2. 10 CFR 50.54x.
3. Safe Shutdown Report, Dresden Units 2 and 3 (Fire Protection Program Documentation Package, Volume 3, Book 1).

Special Controls/Reviews:

Posted Procedure - This is a Controlled Posted Procedure. Any authorized change will be brought to the attention of the Department Supervisor or an Operating Engineer, as applicable.

M. Walls
Originator

T. Koppen
Independent Reviewer/Verifier (If Applicable)

S. Mattson
Department Procedure Writer

R. Stachniak
Department Supervisor

APPROVED
FEB 02 1993
D.O.S.R.

HOT SHUTDOWN PROCEDURE - PATH E

A. PURPOSE:

1. This procedure provides guidelines to achieve Dresden U2 hot shutdown, directed from the Control Room, using Hot Shutdown Path E, following a fire in which critical plant components were rendered inoperable.

2. This procedure uses the following components:

   - Isolation Condenser with makeup from Condensate Storage Tank (CST), firewater, or Service Water (SW).
   - U2 D/G and U2 electrical power train.
   - 2B CRD Pump to provide U2 reactor makeup water.
   - 2B Service Water Pump.

B. USER REFERENCES:

1. Procedures:

   a. DOP 6600-02, Diesel Generator 2(3) Startup.

   b. DSSP 0010-01, Determining Safe Shutdown Paths.

   c. DSSP 0100-T11, Cooldown Tables.

   d. DSSP 0100-T14, Minimum CST Inventory for RPV Makeup.

   e. DSSP 0200-T2, Diesel Generator 2(3) Local Manual Start.

C. SUPPLEMENTS:

1. Attachment A, U2 NSO Actions.

2. Attachment B, U2 SS Actions.

3. Attachment C, U2 EA Actions.

4. Attachment D, Inside HVO Actions.

5. Attachment E, Center Desk NSO Actions.

6. Checklist A, Shift Engineer Tracking.

D. PREREQUISITES:

1. Applicable portion of DSSP 0010-01 has been completed.

2. Shift Engineer has directed performance of this procedure.

E. PRECAUTIONS:

1. Fire damage may cause spurious events to occur and/or require the manual operation of various components.

2. In worst case conditions, reactor vessel makeup and decay heat removal must be initiated within 30 minutes of initiating event.

E. 3. When using radios, radio should be held in hand. Using coil-cord microphone may impair reception.

- Direct radio contact may NOT be possible. In such cases, required communications must be relayed.

4. Due to damage to security multiplexer cables, normal entrance through security doors may be prevented.

5. This procedure should be followed only in the event that normal or emergency procedures are insufficient.

6. For a fire on TBX Operating Floor, Control Room instrumentation for Reactor Pressure Vessel (RPV) Level and RPV Pressure may be affected. False readings may occur at the following instruments:

- Fuel Zone Level, 3-263-106A (-340 inches to +60 inches)
- Fuel Zone Level, 3-263-106B (-340 inches to +60 inches)

- Narrow Range Level, 3-640-29A (0 inches to +60 inches)
- Narrow Range Level, 3-640-29A (0 inches to +60 inches)

- RPV Pressure, 3-640-25A (0 psig to 1200 psig)
- RPV Pressure, 3-640-25B (0 psig to 1200 psig)

Local instrumentation is available in RBX at Instrument Racks 2203-5, 2203-6, 2203-7, and 2203-8, for determining these values.

F. LIMITATIONS AND ACTIONS:

1. Keys for high rad areas, CB locks, and security doors are obtained from Shift Engineer's office as necessary.

2. Keys for high-high rad areas are obtained from Rad-Chem office as necessary.

3. Copies of DSSPs, radios, flashlights, protective clothing, masks/air packs, pyrometers, etc., are obtained from Safe Shutdown Equipment Cart (near BUS 25, north of Auxiliary Electric Equipment Room).

4. Steps in this procedures are based on analysis of each component used considering severe fire damage in any fire area of the plant.

- Under any given fire situation, total functional loss of all equipment in a fire area may NOT occur.

- This procedure should be performed at the discretion of the Shift Engineer, or other qualified Senior Reactor Operator serving as the Controlling Supervisor.

F. 5. Certain steps or conditions within this procedure may contradict normal license conditions or Technical Specification requirements, as stated in 10 CFR 50.54x:

> "A licensee may take reasonable action that departs from a license condition or Technical Specification requirements in an emergency when this action is immediately needed to protect the public health and safety and no action consistent with the license conditions and Technical Specifications that can provide adequate or equivalent protection is immediately apparent."

This action "shall be approved, as a minimum, by a licensed Senior Reactor Operator (SRO) prior to taking the action."

G. PROCEDURE:

NOTE

1. U2 Nuclear Station Operator (NSO) will normally coordinate actions of other shift personnel, under direction of Shift Engineer, after initial actions are complete.
2. Initial actions of U2 NSO (Nuclear Station Operator), U2 Shift Supervisor (SS), and U2 Equipment Assistant (EA) are performed concurrently.
3. Checklist A, Shift Engineer Tracking, is provided to assist in tracking procedure progress.

1. Direct U2 NSO to enter Attachment A, U2 NSO Actions, and perform required actions.
2. Direct U2 SS (Shift Supervisor) to enter Attachment B, U2 SS Actions, and perform required actions.
3. Direct U2 EA (Equipment Assistant) to enter Attachment C, U2 EA Actions, and perform required actions.
4. Direct Inside High Voltage Operator (HVO) to obtain a copy of Attachment D, Inside HVO Actions, in preparation for possible actions.
5. Direct Center Desk NSO to obtain a copy of Attachment E, Center Desk NSO Actions, in preparation for possible actions.
6. Check procedure progress on Checklist A, Shift Engineer Tracking.

H. DISCUSSION:

1. This procedure is developed with attachments for shift personnel having actions to perform, with the main procedure body developed for the Shift Engineer or other qualified, licensed Senior Reactor Operator in control of evolutions performed.

2. Checklist A, Shift Engineer Tracking, is provided to the Shift Engineer to assist in tracking plant condition and status for major evolution completion during performance of the procedure.

3. Attachment A, U2 NSO Actions, provides an overview of the evolutions being performed and the approximate sequence, once initial actions have been performed. Details of specific actions are given in the appropriate shift personnel attachments.

W. WRITER'S REFERENCES:

1. NRC Information Notice No. 87-50, Potential LOCA at high and low pressure interfaces from fire damage.

2. Title 10 Code of Federal Regulations (CFR):

   a. 10 CFR 50, Appendix R.

   b. 10 CFR 50.54.

3. Safe Shutdown Report, Dresden Units 2 and 3 (Fire Protection Program Documentation Package, Volume 3, Book 1).

1. Manually scram reactor by depressing MANUAL SCRAM CH A AND MANUAL SCRAM CH B pushbuttons.

   - DO NOT reset scram until RPV makeup source other than CRD is available.

CAUTION
Open relief valves cause a loss of reactor vessel inventory.

2. Place ADS INHIBIT switch in INHIBIT.

3. Place Electromatic Relief Valve control switches in OFF:

   - 2-203-3B, 2B ERV.
   - 2-203-3C, 2C ERV.
   - 2-203-3D, 2D ERV.
   - 2-203-3E, 2E ERV.
   - 2-203-3A, 2A TARGET ROCK.

4. Close Main Steam Isolation Valves (MSIVs):

   - AO 2-203-1A, MSIV.
   - AO 2-203-1B, MSIV.
   - AO 2-203-1C, MSIV.
   - AO 2-203-1D, MSIV.
   - AO 2-203-2A, MSIV.
   - AO 2-203-2B, MSIV.
   - AO 2-203-2C, MSIV.
   - AO 2-203-2D, MSIV.

NOTE
Makeup to the shell side of the Isolation Condenser must be initiated within 20 minutes of Isolation Condenser operation.

5. Open MO 2-1301-3, RX INLET ISOL, to initiate Isolation Condenser.

6. Verify Isolation Condenser valve lineup:

   - AO 2-1301-17, VENT VLV closed.
   - AO 2-1301-20, VENT VLV closed.
   - MO 2-1301-2, RX OUTLET ISOL open.
   - MO 2-1301-1, RX OUTLET ISOL open.
   - MO 2-1301-4, RX INLET ISOL open.

NOTE

Fire in 2/3 D/G Room may cause control fuses for the following valves to blow:

- MO 2-1301-1, RX OUTLET ISOL.
- MO 2-1301-4, RX INLET ISOL.

This condition is recognizable by loss of valve control and indication from the Control Room with power available to MCC 28-1.

7. IF MO 2-1301-1, RX OUTLET ISOL, and MO 2-1301-4, RX INLET ISOL, control or indication is lost, THEN direct Inside HVO to replace applicable fuses in Panel 2202-75.

8. Report completion of initial actions to Shift Engineer.

NOTE

U2 EA initial actions are to open the supply breakers to MO 2-1201-1, RX OUTLET ISOL, and MO 2-1201-1A, RX OUTLET BYP, at MCC 28-1.

CAUTION

Automatic RWCU isolation may NOT occur.

9. © Ensure RWCU Isolation by verifying ONE of the following valve lineups:

   A. MO 2-1201-1, RX OUTLET ISOL, closed,
      AND
      MO 2-1201-1A, RX OUTLET BYP, closed.

   OR

   B. MO 2-1201-2, INLET ISOL, closed,
      AND
      MO 2-1201-3, AUX PP SUCT, closed. © (W-1).

10. IF RWCU valve positions cannot be verified from Control Room, OR RPV level cannot be maintained, THEN, direct Inside HVO (High Voltage Operator) to verify MO 2-1201-2, U2 AUX PMP BYP MOV, closed locally.

11. Notify Shift Engineer of RWCU isolation verification.

12. While monitoring RPV Level and Pressure using multiple indication, throttle MO 2-1301-3, RX INLET ISOL, to minimize shrinkage and loss of reactor vessel inventory through open safety/relief valve(s):

    - Establish and maintain a cooldown rate of ≤ 15°F/hour (use DSSP 0100-T11, Cooldown Tables).
    - Record level and pressure at 10 minute intervals on DSSP 0100-T11.

13. IF Control Room RPV Pressure and Level indication is NOT available, THEN direct Center Desk NSO to monitor reactor pressure and level locally per Attachment E, Center Desk NSO Actions.

14. Verify BUS 23-1 TO TR 28 ACB open and Bus 28 to TR 28 breaker open.

15. IF offsite power is NOT available, THEN verify U2 D/G auto-start and U2 D/G TO BUS 24-1 ACB closed using Control Room indication and alarms.

    - IF Control Room indication is NOT available, THEN direct U2 EA to verify U2 D/G auto-start and auxiliaries.

16. Place control switches in PULL-TO-LOCK to remove loads from BUS 24-1:

    - BUS 24-1 & BUS 34-1 TIE ACB.
    - 2B SDC PP.
    - 2C LPCI PP.
    - 2D LPCI PP.
    - 2B CORE SPRAY PP.
    - 2B RWCU RECIRC PP.
    - 2B RBCCW PP
    - 2/3 RBCCW PP.

17. Verify BUS 24-1 TO TR 29 ACB and TR 29 To BUS 29 breakers closed.

18. Direct U2 SS to verify BUS 24-1 configuration locally.

19. IF offsite power is NOT available, THEN perform the following:

    A. Verify the following breakers on BUS 24 are open:

    - TR 21 TO BUS 24 ACB.
    - TR 22 TO BUS 24 ACB.

    B. Place control switches in PULL-TO-LOCK to remove BUS 24 loads:

    - 2C CCSW PP.
    - 2D CCSW PP.
    - 2C COND/BOOST PP.
    - 2D COND/BOOST PP.
    - 2C CIRC WTR PP.
    - 2/3 SW PP.
    - BUS 24 TO TR 20 ACB.
    - BUS 24 TO TR 26 ACB.
    - BUS 24 TO TR 27 ACB.

    C. Verify BUS 24 & BUS 24-1 TIE ACB is closed.

    D. Direct U2 SS to verify proper BUS 24 configuration locally.

20. Notify Shift Engineer BUS 24-1 and, if applicable, BUS 24 configured.

21. Maintain Isolation Condenser shell side level as follows:

    A. Start 2B COND TRANSFER PP.

    B. Monitor ISOL CONDR LVL, LI 2-1340-2.

    C. IF Control Room isolation condenser level indication is NOT available, THEN direct U2 EA to monitor Isolation Condenser Level locally.

    D. Throttle MO 2-1301-10, COND FILL INLET, as necessary to maintain Isolation Condenser level.

22. Prepare 2B CRD PP for RPV Makeup water as follows:

    A. Direct Inside HVO to align valves for alternate cooling of 2B CRD Pump from Service Water.

    B. WHEN alternate cooling valves are aligned, THEN close MO 2-301-2B, 2B PP DISCH VLV.

        (1) IF control and/or indication is NOT available from the Control Room, THEN direct Inside HVO to check MO 2-0301-2B, 2B CRD PMP DISCH VLV, closed at 2B CRD Pump.

        (2) IF MO 2-0301-2B, 2B CRD PMP DISCH VLV, is NOT closed, THEN direct Inside HVO to manually close MO 2-0301-2B, 2B CRD PMP DISCH VLV, per Attachment D, Inside HVO Actions.

23. IF MO 2-301-2B, 2B PP DISCH VLV has remote control, THEN perform the following:

    A. Start 2B CRD PP.

    B. Open MO 2-301-2B, 2B PP DISCH VLV.

        (1) Monitor 2B CRD Pump amps.

        (2) Ensure 2B CRD Pump motor current does NOT exceed 34 amps.

> CAUTION
>
> IF control of MO 2-301-2B, 2B PP DISCH VLV, is NOT available from the Control Room, THEN careful coordination between U2 NSO and Inside HVO is required to start 2B CRD Pump.

24. IF MO 2-301-2B, 2B PP DISCH VLV, does NOT have remote control and/or indication, THEN perform the following:

    A. Start 2B CRD PP from the Control Room.

    B. Direct Inside HVO to:

        (1) Manually open MO 2-0301-2B, 2B CRD PMP DISCH VLV.

        (2) Monitor amp meter on local panel 2252-76, (on wall north of CRD pump).

        (3) Ensure CRD Pump motor current does NOT exceed 34 amps.

25. Notify Shift Engineer that 2A CRD Pump started.

26. Direct Inside HVO to manually throttle 2-0301-9A, 2A CRD FILTER INLET VLV, or 2-0301-9B, 2B CRD FILTER INLET VLV, (Center Desk NSO will direct operation from local indication if Control Room instrumentation is NOT available) to maintain reactor level at +8 inches to +40 inches.

CAUTION

Service Water must be initiated within 1 1/2 hours after CRD Pump start.

27. IF no Service Water Pumps are running, THEN direct Inside HVO to align Service Water valves to preclude Service Water Pump runout.

28. IF no Service Water Pumps are running, WHEN notified by Inside HVO that Service Water valves are aligned, THEN perform the following:

    A. Start 2B SW PP.

    B. Notify Shift Engineer that 2B SW PP is in operation.

29. To prevent spurious HPCI operation, verify MO 2-2301-5, STEAM ISOL VLV, closed.

NOTE

CST level can be monitored in U2 Rx Feed Pump Room if Control Room indication is NOT available.

30. Continue to provide Isolation Condenser makeup by monitoring CST level:

    A. IF CST level approaches 12 ft, THEN direct Inside HVO to align CST to 2/3 B Contaminated Condensate Storage Tank and 1A CST.

    B. IF CST inventory is approaching the appropriate line on the DSSP 0100-T14, Minimum CST Inventory for RPV Makeup graph, THEN perform the following:

        (1) Open MO 2-4102, SERV WTR VLV, to maintain Isolation Condenser shell side level.

        (2) Stop 2B COND TRANSFER PP.

    C. IF additional Isolation Condenser make-up water is required, THEN direct Inside HVO to open MO 2-3906, SW SUPPLY TO FIRE PROTECTION, in the Cribhouse.

31. Notify Shift Engineer after stable Hot Shutdown conditions have been established.

1. At RBX 250Vdc MCC 2A, open all load breakers EXCEPT for the following Isolation Condenser valve breakers:

   Cubicle H-1, 2-1301-3 U2 ISOL CDSR COND OUTLET OTBD ISOL.
   Cubicle H-2, 2-1301-2 U2 ISOL CDSR STEAM INLET OTBD ISOL.

2. Verify the following breakers are closed at 250Vdc MCC 2A:

   Cubicle H-1, 2-1301-3 U2 ISOL CDSR COND OUTLET OTBD ISOL.
   Cubicle H-2, 2-1301-2 U2 ISOL CDSR STEAM INLET OTBD ISOL.

3. At RBX 250Vdc MCC 2B, open all load breakers EXCEPT for the following isolation condenser valve breakers:

   Cubicle M-1, 2-1301-10 U2 ISOL CDSR CNTAM DEMIN WATER FILL STOP VLV.
   Cubicle N-1, 2-4102 U2 ISOL CDSR FIRE SYSTEM FILL STOP VLV.

4. Verify the following breakers are closed at 250Vdc MCC 2B:

   Cubicle M-1, 2-1301-10 U2 ISOL CDSR CNTAM DEMIN WATER FILL STOP VLV.
   Cubicle N-1, 2-4102 U2 ISOL CDSR FIRE SYSTEM FILL STOP VLV.

5. Align SWGR 29 (RBX third floor southeast corner) as follows:

> CAUTION
>
> Pulling control power fuses for breakers left in service will result in a loss of breaker protection. Breakers can ONLY be tripped manually at the MCC.

   A. Pull all control fuses located in SWGR 29 Cubicles A-1 and A-2.

   B. Manually trip the following breakers on SWGR 29:

      Cubicle C-1, 2-1902B 2B FUEL POOL COOLING PUMP.
      Cubicle C-2, 2-7829-7 480V REACTOR BUILDING MCC 29-7.
      Cubicle C-3, 2-81-902-63 120/240VAC UNINTERRUPTABLE POWER SUPPLY PANEL 902-63.
      Cubicle D-1, 2-5701B 2B MOTOR GENERATOR SET SUPPLY FAN.
      Cubicle D-2, 2-7829-3 480V REACTOR BUILDING MCC 29-3.
      Cubicle D-3, 2-7829-1/9 480V REACTOR BUILDING MCC 29-1 & 29-9.
      Cubicle D-4, 2/3-7829-8 480V CONTROL ROOM HVAC MCC 29-8.
      Cubicle E-1, 2-5702B 2B SOUTH TURBINE BLDG SUPPLY FAN.
      Cubicle E-2, 2-5703B 2B REACTOR BUILDING SUPPLY FAN.
      Cubicle E-3, 2-5704B 2B REACTOR BUILDING EXHAUST FAN.
      Cubicle F-1, 2-5734C 2C DRYWELL COOLER.
      Cubicle F-2, 2-5734D 2D DRYWELL COOLER.
      Cubicle F-3, 2-5734E 2E DRYWELL COOLER.
      Cubicle F-4, 2-7829-5/6 480V REACTOR BUILDING MCC 29-5 & 29-6.

> NOTE
>
> Maintenance handle and ratchet for manually closing 480V breakers are located in Safe Shutdown Equipment box at SWGR 29.

   C. Verify the following SWGR 29 Breakers are racked in and closed:

      Cubicle B-2, MAIN FEED FROM BUS 24-1.
      Cubicle C-4, 2-7829-2/4 480V TURBINE BUILDING MCC 29-2 & 29-4.

6. Align SWGR 28 (RBX third floor southeast corner) as follows:

A. Verify SWGR 28 Cubicle E-2, MAIN FEED FROM BUS 23-1, breaker is open.

CAUTION

Pulling control power fuses for breakers left in service will result in a loss of breaker protection. Breakers can ONLY be tripped manually at the MCC.

B. Pull all control fuses located in SWGR 28 Cubicles F-1 and F-2.

C. Open SAFE SHUTDOWN CONTROL ROOM DISCONNECT SWITCHES TS-282-1 on SWGR 28 Cubicle E-1.

D. Manually trip the following breakers on SWGR 28:

Cubicle A-1, 2-5734A 2A DRYWELL COOLER.
Cubicle A-2, 2-5734B 2B DRYWELL COOLER.
Cubicle A-3, 2-5734F 2F DRYWELL COOLER.
Cubicle A-4, 2-5734G 2G DRYWELL COOLER.
Cubicle B-1, 2-7828-7 480V REACTOR BLDG MCC 28-7.
Cubicle B-3, 2-5702A 2A SOUTH TURBINE BLDG SUPPLY FAN.
Cubicle B-4, 2-5701A 2A MOTOR GENERATOR SET SUPPLY FAN.
Cubicle C-2, 2-7828-2 480V REACTOR BUILDING MCC 28-2.
Cubicle C-3, 2- [illegible]4A 2A REACTOR BUILDING EXHAUST FAN.
Cubicle C-4, 2 [illegible]-3 480V REACTOR BUILDING MCC 28-3.
Cubicle D-1, 2-1[illegible]2A 2A FUEL POOL COOLING PUMP.
Cubicle D-2, 2-5703A 2A REACTOR BUILDING SUPPLY FAN.
Cubicle D-3, 2-5703C 2C REACTOR BUILDING SUPPLY FAN.
Cubicle D-4, 2-1206 U2 REACTOR WATER CLEANUP AUXILIARY PUMP.

NOTE

Maintenance handle and ratchet for manually closing 480V breakers are located in Safe Shutdown Equipment box at SWGR 29.

E. Verify the following SWGR 28 breakers are closed:

Cubicle C-1, 2-7828-1 480V REACTOR BUILDING MCC 28-1.
Cubicle E-3, 2-7329 BUS 28-29 TIE.

7. Close SWGR 29 Cubicle B-3, 2-7328 BUS TIE 29-28, breaker.

8. Report SWGR 28 and SWGR 29 aligned to U2 NSO and Shift Engineer.

9. At TBX 250Vdc MCC #3, verify breakers are closed:

Cubicle A-1, 3-8350-3 U3 250VDC BATTERY TO MAIN BUS #3.
Cubicle I-2, U2 250VDC REACTOR BUILDING MCC #2B (MAIN FEED).

10. Report dc Systems aligned to U2 NSO and Shift Engineer.

11. WHEN notified by U2 NSO to verify BUS 24-1 configuration locally, THEN perform the following:

    A. IF offsite power is NOT available, THEN verify Cubicle 2, 2-6601 STANDBY DIESEL GEN 2 FEED, breaker is closed.

    B. Verify the following BUS 24-1 breakers tripped:

       Cubicle 1, 2/3-3701 UNIT 2/3 RBCCW COOLING WATER PUMP.
       Cubicle 6, 2-1502C 2C LPCI PUMP.
       Cubicle 8, 2-1501D 2D LPCI PUMP.
       Cubicle 9, 2-1002B 2B SHUTDOWN COOLING PUMP.
       Cubicle 10, 2-1401B 2B CORE SPRAY PUMP.
       Cubicle 12, 2-1205B 2B REACTOR WATER CLEANUP RECIRCULATION PUMP.
       Cubicle 13: 3-6734-1 BUS 34-1 FEED.
       Cubicle 14, 2-3701B 2B RBCCW COOLING WATER PUMP.

    C. Verify Cubicle 7, 2-7329 REACTOR BUILDING 480V SWGR 29, breaker closed on BUS 24-1.

    D. Notify U2 NSO BUS 24-1 verification complete.

12. WHEN notified by U2 NSO to verify BUS 24 configuration locally, THEN perform the following:

    A. IF offsite power NOT available, THEN verify BUS 24 breakers tripped:

       Cubicle 5, MAIN FEED FROM RESERVE AUXILIARY TRANSFORMER 22.
       Cubicle 14, RESERVE FEED FROM UNIT AUXILIARY TRANSFORMER 21.

    B. Verify the following Bus 24 breakers open:

       Cubicle 1, 2-1501-44D 2D CONTAINMENT COOLING SERVICE WATER PUMP.
       Cubicle 2, 2-7320 CRIB HOUSE 480V SWGR 20.
       Cubicle 3, 2-1501-44C 2C CONTAINMENT COOLING SERVICE WATER PUMP.
       Cubicle 4, 2-4401C 2C CIRCULATING WATER PUMP.
       Cubicle 8, 2-7326 TURBINE BUILDING 480V SWGR 26.
       Cubicle 9, 2/3-3901 UNIT 2/3 SERVICE WATER PUMP.
       Cubicle 10, 2-7327 TURBINE BUILDING 480V SWGR 27.
       Cubicle 11, 2/3302D/3401D 2D CONDENSATE PUMP AND CONDENSATE BOOSTER PUMP.
       Cubicle 13, 2/3302C/3401C 2C CONDENSATE PUMP AND CONDENSATE BOOSTER PUMP.

    C. Verify Bus 24 Cubicle 12, 2-6724-1 U2 BUS 24-1, breaker closed.

    D. Notify U2 NSO BUS 24 verification complete.

1. Align MCC 29-2 (TBX ground level east of air compressor) as follows:

   A. Open and rack out the following MCC 29-2 breakers:

      Cubicle A1, 2-8300-2 125 VOLT BATTERY CHARGER.
      Cubicle A3, 2-4611B DIESEL STARTING AIR COMPRESSOR 2B.
      Cubicle B1, COMPUTER ROOM TRANSFORMER.
      Cubicle B5, TURBINE DECK VERTICAL MILLING MACHINE.
      Cubicle B6, 2/3-8350-2/3 250V BATTERY CHARGER 2/3.
      Cubicle B7, 2-7902 TURBINE AND RADWASTE BLDG EMERGENCY LIGHTING.
      Cubicle C2, 2-8100-B RX PROTECTION SYSTEM M-G SET 2B.
      Cubicle C3, 2-500 REACTOR PROTECTION SYSTEM.
      Cubicle C4, (TEMPORARY) 480V MCC 115 RESERVE FEED.
      Cubicle D1, 2-5700-30C CCSWP CUBICLE COOLER FAN 1.
      Cubicle D2, 2-5700-30C CCSWP CUBICLE COOLER FAN 2.
      Cubicle D3, 2-5700-30D CCSWP CUBICLE COOLER FAN 1.
      Cubicle D4, 2-5700-30D CCSWP CUBICLE COOLER FAN 2.

   B. Verify the following MCC 29-2 breakers are racked in and closed:

      Cubicle A2, 2-3903 DIESEL COOLING WATER PUMP 2.
      Cubicle A4, 2B-4301 CONDENSATE TRANSFER PUMP 2B.
      Cubicle B2, 2-5203 DIESEL OIL TRANSFER PUMP 2.
      Cubicle C1, MAIN FEED FROM BUS 29.
      Cubicle D5, 2-5790 DIESEL VENT FAN 2.

2. Align MCC 28-1 (RBX ground level by accumulators) as follows:

   A. Open and rack out all MCC 28-1 breakers EXCEPT for the following:

      Cubicle J-3, 2-1301-4 U2 ISOL CDSR OUTLET INBD ISOL VLV.
      Cubicle J-4, 2-1301-1 U2 ISOL CONDENSER STEAM INLET INBD ISOL VLV.
      Cubicle P-1, MAIN FEED FROM BUS 28.

   B. Verify the following MCC 28-1 breakers are racked in and closed:

      Cubicle J-3, 2-1301-4 U2 ISOL CDSR OUTLET INBD ISOL VLV.
      Cubicle J-4, 2-1301-1 U2 ISOL CONDENSER STEAM INLET INBD ISOL VLV.
      Cubicle P-1, MAIN FEED FROM BUS 28.

3. IF offsite power is NOT available, WHEN directed by U2 NSO to verify emergency power, THEN perform the following:

   A. Verify U2 D/G auto-start.

      - IF U2 D/G did NOT auto start, THEN start U2 D/G per *DSSP 0200-T2, Diesel Generator 2(3) Local Manual Start.

   B. Verify DIESEL 2 VENT FAN started at 2252-47, U2 DIESEL GENERATOR AUXILIARY CONTROL Panel (inside U2 D/G Room, by door).

   C. Verify DIESEL COOLING WATER PUMP 2 started at 2252-47, U2 DIESEL GENERATOR AUXILIARY CONTROL Panel.

   D. Verify DIESEL COOLING WATER PUMP 2 flow on FI 2-3941-880A (outside U2 D/G Room). Expected flow rate is approximately 1000 gpm.

NOTE

Isolation Condenser water level should be maintained within sightglass viewing range.

4. IF directed by U2 NSO to monitor Isolation Condenser locally, THEN perform the following:

   A. Open Isolation Condenser Sightglass Isolation Valves:

      - 2-1301-39, U2 ISOL CDSR SIGHT GLASS HI SIDE SV.
      - 2-1301-40, U2 ISOL CDSR SIGHT GLASS LO SIDE SV.
      - 2-1301-633, U2 ISOL CDSR SIGHT GLASS HI SIDE ROOT.
      - 2-1301-634, U2 ISOL CDSR SIGHT GLASS LO SIDE ROOT.

   B. Monitor Isolation Condenser level locally and report status to U2 NSO.

   C. IF directed by U2 NSO to maintain Isolation Condenser level locally, THEN manually throttle MO 2-1301-10, U2 ISOL CDSR CNTAM DEMIN WTR FILL SV, to maintain level within sightglass range.

1. Place isolation switches in Panel 2202-75 (U2 SDC Pump Room) for the following valves in ISOL position.

   - MO 2-1301-1, U2 ISOL CDSR STM INLET INBD ISOL VLV.
   - MO 2-1301-4, U2 ISOL CDSR COND OUTLET INBD ISOL VLV.

2. IF directed by U2 NSO, THEN replace blown fuses for the following valves in Panel 2202-75 (U2 SDC Pump Room) with fuses stored in safe shutdown box located by MCC 28-1, as applicable:

   - MO 2-1301-1, U2 ISOL CDSR STM INLET INBD ISOL VLV.
   - MO 2-1301-4, U2 ISOL CDSR COND OUTLET INBD ISOL VLV.

3. © IF directed by U2 NSO to verify RWCU Isolation locally, THEN perform the following:

   A. IF U2 RBX is accessible, THEN manually close MO 2-1201-2, U2 AUX PUMP BYP MOV, in RWCU pipe chase (entrance on 570).

   B. IF U2 RBX is NOT accessible, THEN verify closure of PCV 2-1217, U2 RWCU PCV, by removing instrument air to U2 RBX by closing 2-4705-504, INST AIR ISOL VLV TO THE U2 RX BLDG (Turbine Bldg elev 517 ft by instrument air compressor). © (W-1)

4. WHEN directed by U2 NSO to align valves for alternate cooling of CRD Pump 2B from Service Water, THEN perform the following:

   A. Verify valves open:

      - 2/3-3999-348, U2 & U3 CRD PMPS SW ALT CLG SUPPLY SV (TBX ground floor west of MCC 27-1 behind Condensate Demin Panel on SW supply HDR).
      - 2-3999-359, U2 CRD PMPS SW ALT CLG RETURN SV (south of EHC unit).

> NOTE
>
> Following valves are located at foot of stairs in CRD Pump Room.

   B. Unlock and close valves:

      - 2-3899-205, U2 CRD PMPS TBCCW SUPPLY HDR SV.
      - 2-3899-204, U2 CRD PMPS TBCCW RETURN HDR SV.

   C. Verify valves closed:

      - 2-3999-360, U2 CRD PMPS SW ALT CLG INLET DRN VLV.
      - 2-3999-361, U2 CRD PMPS SW ALT CLG OUTLET DRN VLV.

   D. Unlock and open valves:

      - 2-3999-357, U2 CRD PMPS SW ALT CLG INLET SV.
      - 2-3999-349, U2 CRD PMPS SW ALT CLG INLET SV.
      - 2-3999-348, U2 CRD PMPS SW ALT CLG OUTLET SV.
      - 2-3999-358, U2 CRD PMPS SW ALT CLG OUTLET SV.

   E. Notify U2 NSO that CRD Cooling Valves aligned.

5. IF directed by U2 NSO to verify MO 2-0301-2B, 2B CRD PMP DISCH VLV, closed at 2B CRD Pump, THEN perform the following:

   A. IF MO 2-0301-2B, 2B CRD PMP DISCH VLV, is NOT closed, THEN perform the following steps to close MO 2-0301-2B, 2B CRD PMP DISCH VLV:

      (1) Rack out breaker at MCC 26-1 Cubicle A-3: 2-0301-2B 2B CRD PUMP DISCH VALVE.

      (2) Manually close MO 2-0301-2B, 2B CRD PMP DISCH VLV, at 2B CRD Pump discharge.

CAUTION
IF control of MO 2-0301-2B, 2B CRD PMP DISCH VLV, is NOT available from Control Room, THEN careful coordination between U2 NSO and Inside HVO is required to start 2B CRD Pump.

6. IF control of MO 2-0301-2B, 2B CRD PMP DISCH VLV is NOT available from the Control Room, WHEN U2 NSO starts 2B CRD Pump from the Control Room, THEN perform the following as directed.

   A. Manually open MO 2-0301-2B, 2B CRD PMP DISCH VLV.

   B. Monitor amp meter at Panel 2252-76, (on wall north of CRD pump).

   C. Ensure CRD Pump motor current does NOT exceed 34 amps.

7. WHEN directed by U2 NSO (or CENTER DESK NSO), THEN manually throttle 2-0301-9A, 2A CRD FILTER INLET VLV, OR 2-0301-9B, 2B CRD FILTER INLET VLV, (RBX ground floor by east bank of HCUs), as directed, to maintain reactor level at +8 inches to +40 inches.

8. IF directed by U2 NSO to align CST to 2/3 B Contaminated Condensate Storage Tank and 1A CST, THEN perform the following:

   A. Open 2/3-3327-A-500, U2 & U3 HPCI SUCT FROM 2/3A CST DNSTRM SV.

   B. Open 2/3-3346-500, U1A STG TO 2/3 CST X-TIE VLV.

   C. Verify 2/3-2301-12, U2 & U3 HPCI SYS SUCT FROM 2/3B CST, is open.

9. IF directed by U2 NSO, THEN open MO 2-3906, SW SUPPLY TO FIRE PROTECTION, in the Cribhouse west of 2B SW Pump.

10. IF no service water pumps are running, WHEN directed by the U2 NSO, THEN close (verify closed) the following valves to preclude Service Water Pump runout:

- 2-3904-500, U2 TBCCW TCV INLET VLV.
  OR
  2-3904-501, U2 TBCCW TCV OUTLET VLV (by U2 TBCCW HX).
- 2-3924-501, U2 TBCCW TCV BYP VLV.
- 3-3904-500, U3 TBCCW HX TCV INLET VLV.
  OR
  3-3904-501, U3 TBCCW HX TCV OUTLET VLV (by U3 TBCCW HX).
- 3-3924-501, U3 TBCCW HX TCV BYP VLV.
- 2-3906-500, U2 TURB OIL CLR TCV INLET VLV.
  OR
  2-3906-501, U2 TURB OIL CLR TCV OUTLET VLV (at SW Discharge Header South of Turbine Oil Reservoir).
- 2-3907-500, U2 TURB OIL CLR TCV BYP VLV.
- 2-3907-A-500, U2 TURB OIL CLR TCV BYP VLV.
- 3-3906-500, U3 TURB OIL CLR TCV INLET VLV.
  OR
  3-3906-501, U3 TURB OIL CLR TCV OUTLET VLV (South of Turbine Oil Reservoir).
- 3-3907-500, U3 TURB OIL CLR TCV BYP VLV.
- 3-3907-A-500, U3 TURB OIL CLR TCV BYP VLV.
- 2/3-3999-240, 2/3 MAX RECYCLE SERVICE WTR RETURN TO U3 DISCH HDR ISOL VLV.
  OR
  2/3-3999-241, 2/3 MAX RECYCLE SERVICE WTR RETURN TO U2 DISCH HDR ISOL VLV (South of Turbine Oil Reservoir).

11. Continue to monitor SW PUMP 2B while in operation.

12. Continue to operate U2 DG in accordance with the requirements of DOP 6600-02, Diesel Generator 2(3) Startup.

1. IF directed by U2 NSO to monitor RPV Level and Pressure locally, THEN perform the following:

   A. Monitor RPV Pressure and Level at one of the following locations:

   - At INSTRUMENT RACK 2202-5 on PI 2-263-60A, U2 REACTOR PRESSURE, and LITS 2-263-59A, U2 REACTOR HIGH WATER LEVEL TRIP.

   OR

   - At INSTRUMENT RACK 2202-6 on PI 2-263-60B, U2 REACTOR PRESSURE, and LITS 2-263-59B, U2 REACTOR HIGH WATER LEVEL TRIP.

   OR

   - At INSTRUMENT RACK 2202-7 on PI 2-263-139A, U2 REACTOR PRESSURE JP #1 LP LINE, and LI 2-263-151A, U2 REACTOR WIDE RANGE LEVEL.

   OR

   - At INSTRUMENT RACK 2202-8 on PI 2-263-139B, U2 REACTOR PRESSURE JP #11 LP LINE, and LI 2-263-151B, U2 REACTOR WIDE RANGE LEVEL.

   B. Record level and pressure at 10 minute intervals on DSSP 0100-T11, Cooldown Tables.

   C. Coordinate with U2 NSO to establish and maintain a cooldown rate of ≤ 15°F/hour (use Saturation Temp/Press and Cooldown Rate Guidelines table of DSSP 0100-T11, Cooldown Tables).

   D. Direct Inside HVO to manually throttle 2-0301-9A, 2A CRD FILTER INLET VLV, or 2-0301-9B, 2B CRD FILTER INLET VLV, as necessary to maintain reactor level at +8 inches to +40 inches.

RESPONSIBLE	ACTION	√
U2 NSO	Initial Actions complete: Manual reactor scram ADS in INHIBIT Safety/relief valves in OFF MSIVs closed Isolation Condenser initiated	
Makeup to shell side of Isolation Condenser must be initiated within 20 minutes of Isolation Condenser operation.		
U2 NSO	RWCU Isolation verified	
U2 NSO	IF offsite power NOT available, verify U2 D/G auto-start	
U2 NSO	Start 2B COND TRANSFER PP	
U2 NSO	Cooldown rate ≤ 15°F/hour established and maintained	
U2 SS	250Vdc MCC #2A aligned	
	250Vdc MCC #2B aligned	
	250Vdc MCC #3 aligned	
U2 SS	SWGR 28 and SWGR 29 aligned	
U2 EA	MCC 29-2 aligned	
	MCC 28-1 aligned	
U2 NSO	BUS 24-1 aligned	
U2 NSO	BUS 24 aligned	
U2 NSO	Isolation Condenser shell side level maintained	
U2 NSO	CRD Pump 2B started	
Service Water must be initiated within 1 1/2 hours after start of CRD Pump.		
U2 NSO	Service Water Pump 2B started (IF no SW Pumps running)	
U2 NSO	CST Level maintained	
INSIDE HVO	Service Water to Isolation Condenser make-up (IF required)	
U2 NSO	Stable Hot Shutdown condition	

REMARKS: _____

NUCLEAR STATION PROCEDURE ROUTING

(TRANSMITTAL RECEIPT)

Register No. (41) 2-2-93 PC

REMOVE: * DSSP 0200-L Rev 01

INSERT: * DSSP 0200-L Rev 02
posted procedure; please post
in Safe Shutdown cart

(Sign and return this form to the DOSR CLERK.)

I hereby acknowledge receipt of the above.

Signed _____ Date _____

ZM/4940

FORM 9-2B

PROCEDURE HISTORY

Procedure Number: DSSP 0200-L mm 1/1/93 Rev. No.: 02

Posted Procedure Locations: ~~N/A~~ see 12-22-92
Safe Shutdown Cart by Bus 25

Supportive References (letters, temporary change request, commitments, analysis): Safe Shutdown Report, Dresden Units 2 and 3 (Fire Protection Program Documentation Package, Volume 3, Book 1); 10 CFR 50, Appendix R; 10 CFR 50.54x; TCR 92-319

Subject experts or other personnel contacted: None

Description and JUSTIFICATION for procedure or change: Upgrade to the requirements of DAP 09-03. Add applicable sections and references. Complete re-write to comply with specifications of DAP 09-03 and Safe Shutdown Report. 11 original steps are included in procedure except for starting CCSW Coolers from the Control Room. CCSW Coolers start automatically on pump start and have to be verified locally. Changed equipment nomenclature to match in plant labeling. Provided cubicle numbers and nameplate nomenclature for breakers. Changed all notes directing performance of various DSSPs to steps. Deleted "control room capability may be lost" notes. This is redundent and is covered in PRECAUTIONS, #1. Added contingent steps on actions to perform if control room control not available. Moved the following activities to Attachments: 1. Starting Diesel Generator(s). 2. Closing Recirc Pump Suction Valves 3. Opening SDC Inlet Header Valves. These activities are highly specific and detract from the procedure if written directly into the body. Also, these are contingency actions of complex detail. Incorporated TCN 92-319. Deleted maintaining RPV level. This procedure floods RPV and recircs via LPCI and ERVs.

LPCI/CCSW COLD SHUTDOWN METHOD

Requirements:

1. 10 CFR 50, Appendix R.
2. 10 CFR 50.54x.
3. Safe Shutdown Report, Dresden Units 2 and 3 (Fire Protection Program Documentation Package, Volume 3, Book 1).

Special Controls/Reviews:

Posted Procedure - This is a Controlled Posted Procedure. Any authorized change will be brought to the attention of the Department Supervisor or an Operating Engineer, as applicable.

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Originator

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Independent Reviewer/Verifier (If Applicable)

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APPROVED
FEB 02 1993
D.O.S.R.

LPCI/CCSW COLD SHUTDOWN METHOD

A. PURPOSE:

This procedure outlines steps to achieve cold shutdown conditions on Dresden Unit 2 OR Unit 3 using the Low Pressure Coolant Injection (LPCI) system while recovering from severe fire damage conditions.

B. USER REFERENCES:

1. Technical Specifications Figure 3.6.1.
2. DSSP 0010-01, Determining Safe Shutdown Paths.
3. DSSP 0200-T3, Diesel Generator 2/3 Local Manual Start.
4. DSSP 0200-T1, Supplying Temporary 125VDC Power to Electromatic Relief Valves.
5. DSSP 0200-T2, Diesel Generator 2(3) Local Manual Start.
6. DSSP 0200-T3, Diesel Generator 2/3 Local Manual Start.
7. DSSP 0200-T6, Temporary 4kV Feed Connection - SDC, LPCI, RBCCW, CCSW.
8. DSSP 0200-T7, Temporary 480V Feed - LPCI & CCSW Pump Room Coolers.
9. DSSP 0200-T8, Temporary 480V Feed Connections - SDC & Recirc MOVs.
10. DSSP 0200-T9, Cable Connections for Monitoring RPV Water, Shell, and Flange Temperature Locally.
11. DSSP 0200-T13, Supplying Unit 2(3) Rx Bldg 125VDC Dist Panel #2(3) from Unit 3(2) Rx Bldg 125VDC Dist Panel #3(2).

C. SUPPLEMENTS:

1. Attachment A, Unit 2(3) Off-site Power Not Available.
2. Attachment B, Closing Unit 2 Recirc Suction Valves.
3. Attachment C, Closing Unit 3 Recirc Suction Valves.
4. Attachment D, Opening SDC Inlet Header A MOV.

D. PREREQUISITES:

1. Applicable portion of DSSP 0010-01 has been completed.
2. Applicable Hot Shutdown Procedure has been completed.
3. Shutdown Cooling (SDC) and/or Reactor Building Closed Cooling Water (RBCCW) Systems are not available for use due to fire damage.
4. Shift Engineer has directed performance of this procedure.

E. PRECAUTIONS:

1. Fire damage may cause spurious events to occur and/or require the manual operation of various components.

2. When using radios, radio should be held in hand. Using coil-cord microphone may impair reception.

   - Direct radio contact may not be possible. In such cases, required communications must be relayed.

3. Due to damage to security multiplexer cables, normal entrance through security doors may be prevented.

4. This procedure should be followed only in the event that normal or emergency procedures are insufficient.

F. LIMITATIONS AND ACTIONS:

1. IF off-site power is NOT available, THEN at least two diesel generators must be available to bring both Unit 2 AND Unit 3 to cold shutdown simultaneously.

   - Steps of this procedure may be inappropriate if off-site power is available.

2. Steps in this procedures are based on analysis of each component used considering severe fire damage in any fire area of the plant.

   - Under any given fire situation, total functional loss of all equipment in a fire area may not occur.

   - This procedure should be performed at the discretion of the Shift Engineer, or other qualified Senior Reactor Operator serving as the Controlling Supervisor.

3. Certain steps or conditions within this procedure may contradict normal license conditions or Technical Specification requirements, as stated in 10 CFR 50.54x:

   > "A licensee may take reasonable action that departs from a license condition or Technical Specification requirements in an emergency when this action is immediately needed to protect the public health and safety and no action consistent with the license conditions and Technical Specifications that can provide adequate or equivalent protection is immediately apparent."

   This action "shall be approved, as a minimum, by a licensed Senior Reactor Operator (SRO) prior to taking the action."

G. PROCEDURE:

1. Based on the following criteria, determine which LPCI and CCSW Pumps will be used to provide cooling:

   - Location of fire.

   - Extent of damage.

   - Off-site power available.

   - Fire damage to any 4kV Buses.

NOTE

At least two (2) Diesel Generators (D/G) are required to place both units in cold shutdown with off-site power not available.

G. 2. IF off-site power is not available, THEN start another D/G per Attachment A, Unit 2(3) Off-site Power Not Available, if required.

3. IF Reactor Pressure Vessel (RPV) Water, Shell, and Shell Flange temperature indications are not available in the Control Room, THEN establish local indication in accordance with DSSP 0200-T9, Cable Connections for Monitoring RPV Water, Shell, and Flange Temperature Locally.

4. Initiate LPCI Pump Room cooling as follows:

a. Start 2(3)-5146B, LPCI Room Cooler B, from Control Room using 2(3)A & 2(3)B LPCI/CS RM COOLERS switch.

b. IF LPCI Room Cooler B cannot be started from Control Room, THEN start LPCI Room Cooler B in accordance with DSSP 0200-T7, Temporary 480V Feed - LPCI & CCSW Pump Room Coolers.

5. Provide cooling water to LPCI Room Cooler B from one of the following sources, as available.

NOTE

No actions are required to supply LPCI Room Coolers from Service Water, the normal supply.

a. To supply Unit 2 LPCI Room Cooler from Unit 2 D/G Cooling Water Pump, verify the following valves are open:

- 2-3933-500, U-2 D/G CLG WTR SUPPLY TO EMERG RM CLRS SV.
- 2-3933-501, U2 CLG WTR SUPPLY TO EMERG RM CLRS MN SV.

b. To supply Unit 3 LPCI Room Cooler from Unit 2 D/G Cooling Water Pump, verify the following valves are open:

- 2-3933-500, U-2 D/G CLG WTR SUPPLY TO EMERG RM CLRS SV.
- 2-3933-501, U2 CLG WTR SUPPLY TO EMERG RM CLRS MN SV.
- 2/3-3933-500, U2 & U3 EMERG RM CLRS CLG WTR SUPPLY CROSSTIE SV.
- 2/3-3933-501, U2 & 3 EMERG RM CLRS CLG WTR SUPPLY CROSSTIE SV.

G. 5. c. To supply Unit 3 LPCI Room Cooler from Unit 3 D/G Cooling Water Pump, verify the following valves are open:

- 3-3933-500, U3 D/G CLG WTR SUPPLY TO EMERG RM CLRS SV.
- 3-3933-501, U3 CLG WTR SUPPLY TO EMERG CLRS MN SV.

d. To supply Unit 2 LPCI Room Cooler from Unit 3 D/G Cooling Water Pump, verify the following valves are open:

- 3-3933-500, U3 D/G CLG WTR SUPPLY TO EMERG RM CLRS SV.
- 3-3933-501, U3 CLG WTR SUPPLY TO EMERG CLRS MN SV.
- 2/3-3933-500, U2 & U3 EMERG RM CLRS CLG WTR SUPPLY CROSSTIE SV.
- 2/3-3933-501, U2 & 3 EMERG RM CLRS CLG WTR SUPPLY CROSSTIE SV.

e. To supply Unit 2 LPCI Room Cooler from Unit 2/3 D/G Cooling Water Pump, open 2/3-3933-500, U2 & U3 EMERG RM CLRS CLG WTR SUPPLY CROSSTIE SV.

f. To supply Unit 3 LPCI Room Cooler from Unit 2/3 D/G Cooling Water Pump, open 2/3-3933-501, U2 & 3 EMERG RM CLRS CLG WTR SUPPLY CROSSTIE SV.

6. Initiate Torus Cooling as follows:

a. At MCC 29-4 (MCC 39-1) (RBX ground floor west), open Cubicle C-2 (E-2), 2(3)-1501-3B U2(3) CNMT COOLING HX B TUBE SIDE DISCHARGE MO VLV, breaker.

b. Locally verify MO 2(3)-1501-3B, U2(3) CNMT CLG HX B TUBE SIDE DISCH MOV, is closed (RBX west LPCI corner room).

c. Station an operator at MO 2(3)-1501-3B, U2(3) CNMT CLG HX B TUBE SIDE DISCH MOV, to immediately open MO 2(3)-1501-3B, U2(3) CNMT CLG HX B TUBE SIDE DISCH MOV, after the first CCSW pump is started.

d. Start one of the following CCSW pumps from the Control Room:

- 2(3)C CCSW PP.

OR

- 2(3)D CCSW PP.

e. IF 2(3)C CCSW PP OR 2(3)D CCSW PP cannot be started from the Control Room THEN start 2(3)C CCSW PP OR 2(3)D CCSW PP in accordance with DSSP 0200-T6, Temporary 4kV Feed Connection - SDC, LPCI, RBCCW, CCSW.

f. Verify breaker closed by checking light indication and the mechanical CLOSED indication at the breaker.

g. Verify 2(3)C OR 2(3)D CCSW PP running by checking pump current and discharge pressure, if available.

h. Immediately open MO 2(3)-1501-3B, U2(3) CNMT CLG HX B TUBE SIDE DISCH MOV.

G. 7. IF control of the following LPCI valves is available from Control Room, THEN align valves, as indicated, from the Control Room:

- MO 2(3)-1501-5C, PP SUCTION VLV, Open.
- MO 2(3)-1501-5D, PP SUCTION VLV, Open.
- MO 2(3)-1501-11B, HX BYPASS VLV, Closed.
- MO 2(3)-1501-13B, MIN FLOW VLV, Closed.
- MO 2(3)-1501-18B, TORUS SPRAY VLV, Closed.
- MO 2(3)-1501-19B, TORUS SPRAY VLV, Closed.
- MO 2(3)-1501-20B, TORUS CLG/TEST, Open.
- MO 2(3)-1501-21B, LPCI VLV, Open.
- MO 2(3)-1501-22B, INJ VLV, Closed.
- MO 2(3)-1501-27B, DW SPRAY VLV, Closed.
- MO 2(3)-1501-28B, DW SPRAY VLV, Closed.
- MO 2(3)-1501-32B, XTIE VLV, Closed.
- MO 2(3)-1501-38B, TORUS CLG/TEST, Closed.
- MO 2(3)-1501-20A, TORUS CLG/TEST, Open.
- MO 2(3)-1501-21A, LPCI VLV, Closed.
- MO 2(3)-1501-22A, INJ VLV, Open.
- MO 2(3)-1501-27A, DW SPRAY VLV, Closed.
- MO 2(3)-1501-38A, TORUS CLG/TEST, Closed.

(Intentionally Blank)

G. 8. IF cooling Unit 2, THEN open breakers at the indicated MCC.

MCC 29-4:

Cubicle A-3, 2-1501-5C U2 LPCI LOOP C PUMP SUCTION ISOL MO VLV.

Cubicle A-4, 2-1501-5D U2 LPCI LOOP D PUMP SUCTION ISOL MO VLV.

Cubicle B-1, 2-1501-38B U2 LPCI LOOP II FULL FLOW TEST OTBD VLV.

Cubicle B-2, 2-1501-20B U2 LPCI LOOP II FULL FLOW BYPASS TEST INBD.

Cubicle B-3, 2-1501-18B U2 LPCI LOOP II TORUS SPRAY OTBD MO VLV.

Cubicle B-4, 2-1501-19B U2 LPCI LOOP II TORUS SPRAY INBD MO VLV.

Cubicle C-3, 2-1501-32B U2 LPCI LOOP I AND II CROSSTIE MO VLV.

Cubicle C-4, 2-1501-13B U2 LPCI LOOP II MINIMUM FLOW BYPASS MOV.

Cubicle E-4, 2-1501-11B U2 CNMT CLG HX B SHELL SIDE BYPASS MO VLV.

MCC 29-7:

Cubicle A-3, 2-1501-21B U2 LPCI LOOP II COOLANT INJECTION OTBD ISOL VLV.

Cubicle A-3, 2-1501-22B U2 LPCI LOOP II COOLANT INJECTION INBD ISOL VLV.

MCC 29-1:

Cubicle D-4, 2-1501-27B U2 LPCI LOOP II DW SPRAY OTBD ISOL VLV.

Cubicle F-1, 2-1501-28B U2 LPCI LOOP II DW SPRAY INBD ISOL VLV.

MCC 28-1:

Cubicle K-3, 2-1501-27A U2 LPCI LOOP I DW SPRAY OUTBOARD ISOL VLV.

Cubicle L-1, 2-1501-38A U2 LPCI LOOP I FULL FLOW BYPASS TEST OTBD.

Cubicle L-2, 2-1501-20A U2 LPCI LOOP I FULL FLOW BYPASS TEST INBD VLV.

MCC 28-7:

Cubicle B-3, 2-1501-22A U2 LPCI LOOP I COOLANT INJECTION INBD ISOL VLV.

Cubicle D-2, 2-1501-21A U2 LPCI LOOP I COOLANT INJECTION OTBD ISOL VLV.

G. 9. IF cooling Unit 3, THEN open breakers at the indicated MCC.

MCC 39-1:

Cubicle K-1, 3-1501-5C U3 LPCI C PUMP SUCTION ISOL MO VLV.

Cubicle K-2, 3-1501-5D U3 LPCI D PUMP SUCTION ISOL MO VLV.

Cubicle K-3, 3-1501-27B U3 LPCI LOOP II DW SPRAY OTBD ISOL VLV.

Cubicle K-4, 3-1501-28B U3 LPCI LOOP II DW SPRAY INBD ISOL VLV.

Cubicle L-1, 3-1501-38B U3 LPCI LOOP II FULL FLOW BYPASS OTBD.

Cubicle L-2, 3-1501-20B U3 LPCI LOOP II FULL FLOW BYPASS TEST VLV.

Cubicle L-3, 3-1501-18B U3 LPCI LOOP II TORUS SPRAY OTBD ISOL VLV.

Cubicle L-4, 3-1501-19B U3 LPCI LOOP II TORUS SPRAY INBD ISOL VLV.

Cubicle N-1, 3-1501-13B U3 LPCI LOOP II MINIMUM FLOW BYPASS MO VLV.

Cubicle N-2, 3-1501-11B U3 CNMT CLG HX B SHELL SIDE BYPASS MO VLV.

Cubicle P-4, 3-1501-32B U3 LPCI LOOP I AND II CROSSTIE MO VLV.

MCC 39-7:

Cubicle A-3, 3-1501-21B U3 LPCI LOOP II COOLANT INJECTION OTBD ISOL VLV.

Cubicle C-2, 3-1501-22B U3 LPCI LOOP II COOLANT INJECTION INBD ISOL VLV.

MCC 38-4:

Cubicle B-1, 3-1501-38A U3 LPCI LOOP I FULL FLOW BYPASS TEST OTBD.

Cubicle B-2, 3-1501-20A U3 LPCI LOOP I FULL FLOW BYPASS TEST INBD.

MCC 38-7:

Cubicle C-3, 3-1501-21A U3 LPCI LOOP I COOLANT INJECTION OTBD ISOL VLV.

Cubicle A-2, 3-1501-22A U3 LPCI LOOP I COOLANT INJECTION INBD ISOL VLV.

MCC 38-1:

Cubicle H-3, 3-1501-27A U3 LPCI LOOP I DW SPRAY OTBD ISOL VLV.

G. 10. IF valve control/indication was NOT available from Control Room, THEN manually align LPCI valves:

- MO 2(3)-1501-5C, U2 LPCI LOOP C (U3 LPCI C) PMP SUCT ISOL MOV, open.
- MO 2(3)-1501-5D, U2(3) LPCI D PMP SUCT ISOL MOV, open.
- MO 2(3)-1501-11B, U2(3) CNMT CLG HX B SHELL SIDE BYP MOV, closed.
- MO 2(3)-1501-13B, U2(3) LPCI LOOP II MIN FLOW BYP MOV, closed.
- MO 2(3)-1501-18B, U2(3) LPCI LOOP II TORUS SPRAY OTBD (ISOL) MOV, closed.
- MO 2(3)-1501-19B, U2(3) LPCI LOOP II TORUS SPRAY INBD (ISOL) MOV, closed.
- MO 2(3)-1501-20B, U2(3) LPCI LOOP II FULL FLOW BYP TEST INB (INBD) MOV, open.
- MO 2(3)-1501-21B, U2(3) LPCI LOOP II COOLANT INJ OTBD (ISOL) MOV, open.
- MO 2(3)-1501-22B, U2(3) LPCI LOOP II COOLANT INJ INBD (ISOL) MOV, closed.
- MO 2(3)-1501-27B, U2(3) LPCI LOOP II DW SPRAY OTBD ISOL VLV, closed.
- MO 2(3)-1501-28B, U2(3) LPCI LOOP II DW SPRAY INBD ISOL VLV (MOV), closed.
- MO 2(3)-1501-32B, U2(3) LPCI LOOP I AND (LOOP) II X-TIE MOV, closed.
- MO 2(3)-1501-38B, U2(3) LPCI LOOP II FULL FLOW (BYP) TEST OTBD (TEST) MOV, closed.
- MO 2(3)-1501-20A, U2(3) LPCI LOOP I FULL FLOW BYP TEST INBD MOV, open.
- MO 2(3)-1501-21A, U2(3) LPCI LOOP I COOLANT INJ OTBD ISOL VLV, closed.
- MO 2(3)-1501-22A, U2(3) LPCI LOOP I COOLANT INJ INBD ISOL MOV, open.
- MO 2(3)-1501-27A, U2(3) LPCI LOOP I DW SPRAY OTBD ISOL VLV, closed.
- MO 2(3)-1501-38A, U2(3) LPCI LOOP I FULL FLOW BYP TEST OTBD MOV, closed.

11. Station an operator at MO 2(3)-1501-38B to open MO 2(3)-1501-38B, U2(3) LPCI LOOP II FULL FLOW (BYP) TEST OTBD (OTBD TEST) MOV, immediately after the first LPCI pump is started.

12. Verify the closing fuses for LPCI Pumps C or D are installed in the applicable 4kV bus.

G. 13. Start 2(3)C LPCI PP OR 2(3)D LPCI PP from the Control Room.

14. IF 2(3)C LPCI PP OR 2(3)D LPCI PP cannot be started from Control Room, THEN start 2(3)C LPCI PP OR 2(3)D LPCI PP as follows:

a. Start 2(3)C LPCI PP OR 2(3)D LPCI Pump in accordance with DSSP 0200-T6, Temporary 4kV Feed Connection - SDC, LPCI, RBCCW, CCSW.

b. Verify breaker closed by checking light indication and the mechanical CLOSED indication at the breaker.

c. Verify LPCI Pump is running by checking the pump current and discharge pressure, if available.

15. Immediately open MO 2(3)-1501-38B, U2(3) LPCI LOOP II FULL FLOW (BYP) TEST OTBD (OTBD TEST) MOV.

NOTE

CCSW Pump Room cooling provides cooling for CCSW Pump 2(3)-1501-44C, located inside the water tight vault. CCSW Pump 2(3)-1501-44D, which is outside the vault, does not require cooling.

This procedure provides the option of using either the C or D CCSW pumps.

16. Verify CCSW Room Coolers are operating locally.

- IF CCSW Room Coolers are not operating, THEN initiate CCSW from the Local Control Panel.
- IF CCSW Room Coolers will not start locally, THEN initiate CCSW Pump Room Cooling in accordance with DSSP 0200-T7, Temporary 480V Feed for LPCI and CCSW Pump Room Coolers.

17. IF Recirculation (Recirc) Pumps are not running, THEN close Recirc Pump Suction Valves from the Control Room to prevent stratification:

- MO 2(3)-0202-4A, 2(3)A PP SUCT VLV.
- MO 2(3)-0202-4B, 2(3)B PP SUCT VLV.

18. IF Recirc Suction Valves could not be closed from the Control Room, THEN perform the following the close Recirc Suction Valves:

a. IF power is available to the normal supply MCCs, THEN attempt to close valves per Attachment B(C), Closing Unit 2(3) Recirc Suction Valves.

b. IF power is NOT available to the normal supply MCCs OR valves cannot be closed using Attachment B(C), THEN close valves per DSSP 0200-T8, Temporary 480V Feed Connections - SDC & Recirc MOVs.

CAUTION

The following four criteria shall be maintained throughout LPCI cooldown operation:

1. The change in reactor water temperature shall not be greater than 100°F/hr when averaged over a one (1) hour period.

2. Vessel shell to shell flange differential temperature shall not exceed 140°F.

3. Reactor water temperature shall not be less than 100°F when head bolts are tensioned.

4. Reactor vessel temperature shall be above the applicable curve of Technical Specifications Figure 3.6.1 for the given reactor pressure.

G. 19. Perform the following, as applicable, to restore Electromatic Relief Valve (ERV) power:

a. For Unit 2:

(1) Replace the following fuses inside Panel 902-32 (Auxiliary Electric Equipment Room):

• F19.	• F26.	• F37.	• F44.
• F20.	• F28.	• F38.	• F45.
• F22.	• F29.	• F39.	• F46.
• F23.	• F33.	• F40.	• F47.
• F25.	• F34.	• F41.	• F48.

(2) Close Breaker 25, PANEL 902-32 AUTOMATIC DEPRESSURIZATION SYSTEM, at U2 125VDC TURB BLDG MAIN BUS 2A-1 DIST PNL.

(3) Close the following breakers at U2 125VDC TURB BLDG RESERVE BUS 2B-1 DIST PNL.

• Breaker 11, PANEL 902-32 (ALTERNATE FEED) SAFETY RELIEF VALVES 203-3A/B CONTROL POWER.

• Breaker 12, PANEL 902-32 (ALTERNATE FEED) SAFETY RELIEF VALVES 203-3C/D/E CONTROL POWER.

b. For Unit 3:

(1) Replace fuses F-1 through F-20 in Panel 2203-32 (RBX second floor by Instrument Rack 2203-5).

(2) Close Breaker 9, PANEL 2203-32 (NORMAL FEED) SAFETY RELIEF VALVE CONTROL POWER, on U3 125VDC RX BLDG DIST PANEL #3 (RBX third floor inside RBX 250V dc Bus).

(3) Close Breaker 7, PANEL 2203-32 (ALTERNATE FEED) SAFETY RELIEF VALVE CONTROL POWER, on U3 125VDC TURB BLDG RESERVE BUS 3B-1 DISTR PANEL (ESS DIV II) (inside U3 dc distribution room).

NOTE

A minimum of four (4) relief valves are required for alternate shutdown cooling.

G. 20. Place the control switches for FOUR of the following valves in MANUAL to open relief valves:

- 2(3)-203-3B, 2(3)B ERV.
- 2(3)-203-3C, 2(3)C ERV.
- 2(3)-203-3D, 2(3)D ERV.
- 2(3)-203-3E, 2(3)E ERV.
- 2(3)-203-3A, 2(3)A TARGET ROCK.

21. IF relief valves cannot be opened from the Control Room, THEN open valves in accordance with DSSP 0200-T1, Supplying Temporary 125VDC Power to Electromatic Relief Valves.

22. Initiate RPV cooling as follows:

CAUTION

IF RPV pressure is greater than 350 psig, THEN DO NOT open LPCI valve MO 2(3)-1501-22B, INJ VLV.

a. WHEN RPV pressure is less than 350 psig, THEN slowly open LPCI valve MO 2(3)-1501-22B, INJ VLV.

b. Close LPCI valve MO 2(3)-1501-38B, TORUS CLG/TEST.

23. Establish and maintain a cooldown rate of less than 100°F/hr by:

a. Throttling LPCI valve MO 2(3)-1501-22B, INJ VLV.
AND/OR
b. Alternately closing and opening ERVs.

24. Monitor RPV pressure and level at the following locations if Control Room indication is not available:

- Instrument Rack 2202(3)-5 on PI 2(3)-263-60A, U2(3) REACTOR PRESSURE, and LITS 2(3)-263-59A, U2(3) REACTOR HIGH WATER LEVEL TRIP.

OR

- Instrument Rack 2202(3)-6 on PI 2(3)-263-60B, U2(3) REACTOR PRESSURE, and LITS 2(3)-263-59B, U2(3) REACTOR HIGH WATER LEVEL TRIP.

OR

- Instrument Rack 2202(3)-7 on PI 2(3)-263-139A, U2(3) REACTOR PRESSURE JP #1 LP LINE, and LI 2(3)-263-151A, U2(3) REACTOR WIDE RANGE LEVEL.

OR

- Instrument Rack 2202(3)-8 on PI 2(3)-263-139B, U2(3) REACTOR PRESSURE JP #11 LP LINE, and LI 2(3)-263-151B, U2(3) REACTOR WIDE RANGE LEVEL.

CAUTION

SDC valves will not open if reactor temperature is greater than 350°F, OR pressure is greater than 120 psig.

G. 25. Open the following SDC valves from the Control Room (verify valves are open using Control Room indication):

- MO 2(3)-1001-1A, INLET ISOL VLV.
- MO 2(3)-1001-5A, OUTLET ISOL VLV.

26. IF preceding SDC valves could not be opened from the Control Room, THEN open valves as follows:

a. Open the following breakers at 480V MCC 28-1 (38-1):

- Cubicle C-3(G-2), 2(3)-1001-5A U2(3) SHUTDOWN COOLING (CLG) OUTLET HEADER A MO VLV.
- Cubicle C-4(G-4), 2(3)-1001-1A U2(3) SHUTDOWN COOLING (CLG) INLET HEADER A MO VLV.

b. Manually open MO 2(3)-1001-5A, U2(3) SDC INLET HDR A MO VLV.

c. Open MO 2(3)-1001-1A by performing Attachment D, Opening SDC Inlet Header A MOV.

d. IF power is NOT available to the normal supply MCC OR MO 2(3)-1001-1A cannot be opened using Attachment D, THEN open MO 2(3)-1001-1A per DSSP 0200-T8, Temporary 480V Feed Connections - SDC & Recirc MOVs.

27. Open the following SDC valves from the Control Room.

- MO 2(3)-1001-2A, 2A PP SUCT VLV.
- MO 2(3)-1001-4A, 2A PP DISCH VLV.
- MO 2(3)-1001-2B, 2B PP SUCT VLV.
- MO 2(3)-1001-4B, 2B PP DISCH VLV.

28. IF preceding SDC valves could not be opened from the Control Room, THEN perform the following to open valves:

a. Open the following breakers at RBX 250V dc MCC 2A(3A):

- Cubicle E-2(E-2), 2(3)-1001-2A U2(3) SHUTDOWN COOLING PUMP 2(3)A SUCTION MO VLV
- Cubicle F-1(F-1), 2(3)-1001-2B U2(3) SHUTDOWN COOLING PUMP 2(3)B SUCTION MO VLV
- Cubicle I-1(I-1), 2(3)-1001-4A U2(3) SHUTDOWN COOLING HX 2(3)A OUTLET MO VLV
- Cubicle I-2(I-2), MO 2(3)-1001-4B U2(3) SHUTDOWN COOLING HX 2(3)B OUTLET MO VLV

G. 28. b. Manually open the following valves:

- MO 2(3)-1001-2A, U2(3) SDC PMP 2(3)A SUCT MO VLV.
- MO 2(3)-1001-2B, U2(3) SDC PMP 2(3)B SUCT MO VLV.
- MO 2(3)-1001-4A, U2(3) SDC HX 2(3)A OUTLET MO VLV.
- MO 2(3)-1001-4B, U2(3) SDC HX 2(3)B OUTLET MO VLV.

29. Open LPCI valve MO 2(3)-1501-38A, TORUS CLG/TEST, to allow reactor vessel water to flow to the torus.

30. Perform the following while conducting the cooldown:

a. Maintain reactor water temperature above head tensioning limit of 100°F.

b. Maintain a cooldown rate of less than 100°F/hr by:

(1) Throttling LPCI valve MO 2(3)-1501-22B, INJ VLV.
AND/OR
(2) Alternately closing and opening SRVs.

31. Proceed to normal unit shutdown as directed by the Shift Engineer.

H. DISCUSSION:

NONE.

W. WRITER'S REFERENCES:

1. Title 10 Code of Federal Regulations (CFR):

   a. 10 CFR 50, Appendix R.

   b. 10 CFR 50.54.

2. Safe Shutdown Report, Dresden Units 2 and 3 (Fire Protection Program Documentation Package, Volume 3, Book 1).

3. DAP 07-04, Control of Temporary System Alterations.

4. 12E-2420A (Schematic Control Diagram Recirculation Pump 2A Motor Operated Valves).

5. 12E-2420B (Schematic Control Diagram Recirculation Pump 2B Motor Operated Valves).

6. 12E-2508A (Schematic Diagram Primary Containment Isolation System for MOV 1001-1A and 1001-1B Control Sh 8).

7. 12E-2662B (Wiring and Schematic Diagram 480VAC Reactor Bldg MCC 28-7 PT 2).

8. 12E-2662D (Wiring and Schematic Diagram 480VAC Reactor Bldg MCC 29-7 PT).

9. 12E-2674B (Wiring and Schematic Diagram 480VAC Reactor Bldg MCC 28-1 PT 2).

10. 12E-3420A (Schematic Control Diagram Recirculation Pump 3A Motor Oper Valves).

11. 12E-3420B (Schematic Control Diagram Recirculation Pump 3B Motor Oper Valves).

12. 12E-3508A (Schematic Diagram Primary Containment Isol System for MOV 1001-1A and 1001-1B Control Sh 8).

13. 12E-3662A (Wiring and Schematic Diagram 480VAC Reactor Bldg MCC 38-7 PT).

14. 12E-3662C (Wiring and Schematic Diagram 480VAC Reactor Bldg MCC 39-7 PT 1).

15. 12E-3674D (Wiring and Schematic Diagram 480VAC Reactor Bldg MCC 38-1 PT 4).

1. Verify D/G used to achieve stable Hot Shutdown conditions is still in operation.

2. Choose a second D/G based on the following concerns:

   - Availability of 125Vdc RBX Distribution (Dist) Panel 2 (for Unit 2 D/G) or Panel 3 (for Unit 3 D/G) to provide breaker control power.
   - Fire damage to D/G components.
   - Availability of 4kV emergency bus on which to load D/G.

3. IF power to the applicable dc Dist Panel has been damaged by the fire, THEN crosstie the Unit 2 and Unit 3 Dist Panel using DSSP 0200-T13, Supplying Unit 2(3) Rx Bldg 125Vdc Dist Panel #2(3) from Unit 3(2) Rx Bldg 125VDC Dist Panel #3(2).

4. For the chosen D/G, perform the following:

   A. IF 2/3 D/G is to supply Unit 2 4kV Bus 23-1, THEN verify all breakers are open on Bus 23-1.

   B. IF 2/3 D/G is to supply Unit 3 4kV Bus 33-1, THEN verify all breakers are open on Bus 33-1.

   C. IF Unit 2 D/G is to supply Unit 2 4kV Bus 24-1, THEN verify all breakers are open on Bus 24-1.

   D. IF Unit 3 D/G is to supply Unit 3 4kV Bus 34-1, THEN verify all breakers are open on Bus 34-1.

5. Start the chosen D/G from the Control Room.

6. IF the D/G cannot be started from the Control Room, THEN start the D/G in accordance with the appropriate procedure:

   - DSSP 0200-T2, Diesel Generator 2(3) Local Manual Start,

   OR

   - DSSP 0200-T3, Diesel Generator 2/3 Local Manual Start.

7. Supply power to the bus by closing the applicable breaker at the bus:

   A. IF supplying Bus 23-1 from 2/3 D/G, THEN close Cubicle 14, STANDBY D/G 2/3 FEED (VIA 4KV BUS 40), breaker on Bus 23-1.

   B. IF supplying Bus 33-1 from 2/3 D/G, THEN close Cubicle 14, STANDBY D/G 2/3 FEED (VIA 4KV BUS 40), breaker on Bus 33-1.

   C. IF supplying Bus 24-1 from Unit 2 D/G, THEN close Cubicle 2, STANDBY DIESEL GEN 2 FEED, breaker on Bus 24-1.

   D. IF supplying Bus 34-1 from Unit 3 D/G, THEN close Cubicle 7, STANDBY DIESEL GEN 3 FEED, breaker on Bus 34-1.

1. Perform the following to close MO 2-202-4A, 2A RECIRC PMP SUCT VLV:

A. Open Cubicle C-1, 2-0202-4A 2A RECIRC PUMP SUCTION VLV, breaker at 480V MCC 28-7.

B. Lift Cable 22499 orange wire from Terminal 3A (to prevent spurious valve opening).

Wire disconnected by_____
(Signature)

Verified by_____
Electrical Maintenance Supervisor (EMS) or Shift Supervisor (SS)
(Signature)

C. Install a jumper between Terminals 1 and 8A.

Jumper installed by_____
(Signature)

Verified by_____
EMS (Electrical Maintenance Supervisor) or SS (Shift Supervisor)
(Signature)

D. Close Cubicle C-1, 2-0202-4A 2A RECIRC PUMP SUCTION VLV, breaker at 480V MCC 28-7.

E. Verify the closing relay picks up.

F. Verify that, within approximately one (1) minute, the closing relay drops out to indicate MO 2-202-4A, 2A RECIRC PMP SUCT VLV is fully closed.

G. Open Cubicle C-1, 2-0202-4A 2A RECIRC PUMP SUCTION VLV, breaker at 480V MCC 28-7.

H. Remove the jumper installed between Terminals 1 and 8A.

Jumper removed by_____
(Signature)

Verified by_____
EMS or SS (Signature)

I. Reconnect Cable 22499 orange wire to Terminal 3A.

Wire reconnected by_____
(Signature)

Verified by_____
EMS or SS (Signature)

2. Perform the following to close MO 2-202-4B, 2B RECIRC PMP SUCT VLV:

A. Open Cubicle C-2, 2-0202-4B 2B RECIRC PUMP SUCTION VLV, breaker at 480V MCC 29-7.

B. Lift Cable 22859 orange wire from Terminal 3A (to prevent spurious valve opening).

Wire disconnected by_____
(Signature)

Verified by_____
EMS or SS (Signature)

C. Install a jumper between Terminals 1 and 8A.

Jumper installed by_____
(Signature)

Verified by_____
EMS or SS (Signature)

D. Close Cubicle C-2, 2-0202-4B 2B RECIRC PUMP SUCTION VLV, breaker at 480V MCC 29-7.

E. Verify the closing relay picks up.

F. Verify that, within approximately one (1) minute, the closing relay drops out to indicate MO 2-202-4B, 2B RECIRC PMP SUCT VLV, is fully closed.

G. Open Cubicle C-2, 2-0202-4B 2B RECIRC PUMP SUCTION VLV, breaker at 480V MCC 29-7.

H. Remove the jumper installed between Terminals 1 and 8A.

Jumper removed by_____
(Signature)

Verified by_____
EMS or SS (Signature)

I. Reconnect Cable 22859 orange wire to Terminal 3A.

Wire reconnected by_____
(Signature)

Verified by_____
EMS or SS (Signature)

1. Perform the following to close MO 3-0202-4A, 3A RECIRC PMP SUCT VLV:

   A. Open Cubicle B-1, 3-0202-4A 3A RECIRC PUMP SUCTION VLV, breaker at 480V MCC 38-7.

   B. Lift Cable 32499 orange wire from Terminal 3A (to prevent spurious valve opening).

      Wire disconnected by_____
      (Signature)

      Verified by_____
      EMS or SS (Signature)

   C. Install a jumper between Terminals 1 and 8A.

      Jumper installed by_____
      (Signature)

      Verified by_____
      EMS or SS (Signature)

   D. Close Cubicle B-1, 3-0202-4A 3A RECIRC PUMP SUCTION VLV, breaker at 480V MCC 38-7.

   E. Verify the closing relay picks up.

   F. Verify that, within approximately one (1) minute, the closing relay drops out to indicate MO 3-0202-4A, 3A RECIRC PMP SUCT VLV is fully closed.

   G. Open Cubicle B-1, 3-0202-4A 3A RECIRC PUMP SUCTION VLV, breaker at 480V MCC 38-7.

   H. Remove the jumper installed between Terminals 1 and 8A.

      Jumper removed by_____
      (Signature)

      Verified by_____
      EMS or SS (Signature)

   I. Reconnect Cable 32499 orange wire to Terminal 3A.

      Wire reconnected by_____
      (Signature)

      Verified by_____
      EMS or SS (Signature)

2. Perform the following to close MO 3-0202-4B, 3B RECIRC PMP SUCT VLV:

A. Open Cubicle B-2, 3-0202-4B 3B RECIRC PUMP SUCTION VLV, breaker at 480V MCC 39-7.

B. Lift Cable 32859 orange wire from Terminal 3A (to prevent spurious valve opening).

Wire disconnected by_____
(Signature)

Verified by_____
EMS or SS (Signature)

C. Install a jumper between Terminals 1 and 8A.

Jumper installed by_____
(Signature)

Verified by_____
EMS or SS (Signature)

D. Close Cubicle B-2, 3-0202-4B 3B RECIRC PUMP SUCTION VLV, breaker at 480V MCC 39-7.

E. Verify the closing relay picks up.

F. Verify that, within approximately one (1) minute, the closing relay drops out to indicate MO 3-0202-4B, 3B RECIRC PMP SUCT VLV, is fully closed.

G. Open Cubicle B-2, 3-0202-4B 3B RECIRC PUMP SUCTION VLV, breaker at 480V MCC 39-7.

H. Remove the jumper installed between Terminals 1 and 8A.

Jumper removed by_____
(Signature)

Verified by_____
EMS or SS (Signature)

I. Reconnect the wire removed from Terminal Point 3A.

Wire reconnected by_____
(Signature)

Verified by_____
EMS or SS (Signature)

OPENING SDC INLET HEADER A MOV

1. Verify Cubicle C-4(G-4), 2(3)-1001-1A U2(3) SHUTDOWN COOLING (CLG) INLET HEADER A MO VLV, breaker is open on 480V MCC 28-1 (38-1).

2. Lift Cable 22487 (32478) green-black wire from Terminal 8A (to prevent spurious valve closing).

   Wire disconnected by_____
   (Signature)

   Verified by_____
   EMS or SS (Signature)

3. Install a jumper between Terminals 1 and 3A.

   Jumper installed by_____
   (Signature)

   Verified by_____
   EMS or SS (Signature)

4. Close Cubicle C-4(G-4), 2(3)-1001-1A U2(3) SHUTDOWN COOLING (CLG) INLET HEADER A MO VLV, breaker on 480V MCC 28-1 (38-1).

5. Verify the opening relay picks up.

6. Verify that, within approximately one (1) minute, the opening relay drops out to indicate MO 2(3)-1001-1A, U2(3) SHUTDOWN COOLING (CLG) INLET HEADER A MO VLV, is fully open.

7. Open Cubicle C-4(G-4), 2(3)-1001-1A U2(3) SHUTDOWN COOLING (CLG) INLET HEADER A MO VLV, breaker on 480V MCC 28-1 (38-1).

8. Remove the jumper installed between Terminals 1 and 3A.

   Jumper removed by_____
   (Signature)

   Verified by_____
   EMS or SS (Signature)

9. Reconnect Cable 22487 (32478) green-black wire to Terminal 8A.

   Wire reconnected by_____
   (Signature)

   Verified by_____
   EMS or SS (Signature)