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THREE MILE ISLAND NUCLEAR STATION UNIT #2 EMERGENCY PROCEDURE 2202-2.2 LOSS OF STEAM GENERATOR FEED

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Unit 1 Staff Recommends Approval

Approval NA Date
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Unit 2 Staff Recommends Approval

Approval NA Date
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Unit 1 PORC Recommends Approval

NA Date
Chairman of PORC

Unit 2 PORC Recommends Approval

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Unit 1 Superintendent Approval

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Unit 2 Superintendent Approval

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Manager Generation Quality Assurance Approval NA Date

THREE MILE ISLAND NUCLEAR STATION
UNIT #2 EMERGENCY PROCEDURE 2202-2.2A
LOSS OF MAIN FEEDWATER FLOW TO BOTH OTSG'S

1.0 SYMPTOMS

1. Both OTSG levels decreasing.
2. Feedwater flow to both OTSGs decreasing.
3. Feed pump turbine speed decreasing or both main feed valves closing.
4. Both feed pump turbine trip alarms.
5. Increasing reactor coolant pressure and temperature.
6. Reactor - turbine runback.
7. Turbine trip if both feed pumps trip.

2.0 IMMEDIATE ACTION

A. AUTOMATIC ACTIONS

1. If loss of FW is due to loss of both feed pumps:
 - a. Reactor/Turbine trip due to high RC pressure.
 - b. Emergency feed pumps EF-P-1, EF-P-2A, and EF-P-2B start and maintain OTSG level at 30" (S/U range indication).
2. If loss of FW is due to valves closing, ICS trips to track due to FW X-Limits.

B. MANUAL ACTIONS

1. If loss of FW is due to loss of both feed pumps:
 - a. Trip the Reactor
 - b. Verify Turbine trip and stop valves closed.
 - c. Verify EF-P-1, EF-P-2A, and EF-P-2B start as evidenced by pump discharge pressures.

- d. Verify emergency feed water valves (EF-11A (B)) are in automatic and controlling OTSG level at 30 inches (S/U range indication).
2. Loss of feed water due to valves closing:
 - a. Verify or open main and startup feedwater block valves (FW-V-17A (B) FW-V-14A (B), FW-V-19A (B), FW-V-26A (B)).
 - b. Verify the MWe and reactor power are decreasing.
 - c. Attempt to open main feed reg. valves.
 - d. If reactor coolant temperature and pressure cannot be maintained, or if feedwater flow cannot be restored, or if the reactor trips, start the emergency feed pumps and maintain 30 inches in the steam generators (S/U range indication).

3.0 Follow-Up Action

1. Repair system as required and restore normal feed to OTSG.
2. If plant cooldown is required on loss of both main feedwater pumps, conduct cooldown using emergency feed system. Refer to 2102-3.3, Decay Heat Removal Via OTSG.
3. With flow through the emergency feedwater nozzles, there is a possibility of water accumulation in the OTSG steam annulus space, and the steam lines. Insure these areas are drained prior to startup.

THREE MILE ISLAND NUCLEAR STATION
UNIT #2 EMERGENCY PROCEDURE 2202-2.2B
LOSS OF MAIN FEEDWATER FLOW TO ONE OTSG

1.0 SYMPTOMS

1. Steam generator level decreasing on one OTSG.
2. Feedwater flow to one OTSG decreasing.
3. One main feedwater valve closing.
4. Increasing reactor coolant pressure and temperature.
5. Increasing temperature differential across reactor coolant cold legs.
6. Reactor - turbine runback.

2.0 IMMEDIATE ACTION

A. Automatic Action

1. ICS goes into track due to feedwater cross limits (FW error > + 5%).
2. ICS in tracking mode reduces generated MWe and reactor power to match available feedwater flow.

B. Manual Action

1. Verify that the ICS is in the tracking mode as indicated by both hand and auto lights lit on the unit load demand H/A station.
2. Verify the MWe and reactor power are decreasing.
3. If OTSG level on the affected OTSG is greater than 30 inches, go to manual on H/A station and increase the demand to the associated main and startup FW regulating valve and attempt to regain feedwater flow.

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4. Verify that the associated feedwater block valves are open, (FW-V-14A(B), FW-V-17A(B), FW-V-19A(B) and FW-V-26A(B).
5. If any ICS stations are in hand, runback the appropriate ICS stations.

3.0 FOLLOW-UP ACTION

1. If able to restore FW flow prior to Reaching OTSG level of 15 inches, continue normal operation.
2. If unable to restore normal FW flow prior to reaching OTSG level of 15 inches, concurrently reduce reactor power to less than 8% full power and restore feedwater flow to the affected OTSG using emergency feedwater pump and EF-V11A(B).

NOTE: In the event that an OTSG boils dry, establish feed flow using emergency feedwater pump through the emergency feed valves EF-V-11A(B) very slowly (2 inches per minute).

3. Raise the OTSG level to 25 inches using the emergency feedwater pump and EF-V-11A(B). Restore normal feedwater flow through FW-V-30A(B) and/or FW-V-25A(B) and shutdown the emergency feedwater system. (stop emergency feedwater pump and close EF-V-11A(B)).
4. With flow through the emergency feedwater nozzles, there is a possibility of water accumulation in the OTSG steam annulus space, and the steam lines. Insure these areas are blown down before continued operation.

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TMI DOCUMENTS

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