

# INFORMATION ONLY

Form 34731 (10-81)  
(Formerly SPD-1002-1)

## DUKE POWER COMPANY PROCEDURE PREPARATION PROCESS RECORD

(1) ID No: AP/1/A/5500/01  
Change(s) 0 to  
1 Incorporated

(2) STATION: McGuire Nuclear

(3) PROCEDURE TITLE: Reactor Trip

(4) PREPARED BY: Len Firebaugh DATE: 5-10-83

(5) REVIEWED BY: Sf Summer DATE: 5-12-83

Cross-Disciplinary Review By: \_\_\_\_\_

N/R: SJS

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: \_\_\_\_\_ (SRO) Date: \_\_\_\_\_

By: \_\_\_\_\_ Date: \_\_\_\_\_

(7) APPROVED BY: W. J. Rain Date: 5/12/83

(8) MISCELLANEOUS:

Reviewed/Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

Reviewed/Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

Date/Initial

Verified with Control Copy \_\_\_\_\_/\_\_\_\_\_

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DUKE POWER COMPANY  
McGUIRE NUCLEAR STATION  
REACTOR TRIP

1.0 Symptoms

- 1.1 Any Alarm on Reactor Trip First Out Panel.
- 1.2 All rod bottom lights are illuminated.
- 1.3 Nuclear Instrumentation indicating a rapid decrease in Neutron flux.

2.0 Immediate Action

2.1 Automatic

- 2.1.1 All rods drop into core.
- 2.1.2 Turbine-Generator trip.
- 2.1.3 Feedwater Isolation when Tavg decreases to 564°F.
- 2.1.4 Steam Dumps Arm-Actuate and/or Main Steam PORV lift.
- 2.1.5 CA Pumps start and feed all S/G's if 2/4 Lo-Lo level exist in 1/4 S/G's.

2.2 Manual

- 2.2.1 Manually trip Reactor whenever a valid auto. trip signal exists.

NOTE If Reactor Power does not decrease rapidly and control rods are not inserted, or turbine fails to trip, this is an "Anticipated Transient Without Scram" event.

- 2.2.2 If the reactor or turbine fails to trip when required, proceed to AP/0/A/5500/34 (Actions Required for an Anticipated Transient Without Scram Event) and perform applicable steps concurrent with subsequent steps in this procedure.
- 2.2.3 Verify Feedwater Isolation when Tavg decreases to less than or equal to 564°F.
- 2.2.4 Verify Steam Dumps arm-actuate and/or Main Steam PORV's operate greater than or equal to 1125 psig.
- 2.2.5 Secure all boron dilution operations.
- 2.2.6 Verify CA Pump start and feed all Steam Generators if 2/4 Lo-Lo level exists in 1/4 S/G's.

### 3.0 Subsequent Action

- 3.1 Verify all required Immediate Actions have occurred.

NOTE AP/1/A/5500/02 (Turbine Generator Trip) should be run concurrent with this procedure if applicable.

- 3.2 If any pressurizer PORV's open on high pressurizer pressure, ensure reseating at 2315 psig decreasing.

NOTE If PORV fails to close and pressure is less than 2315 psig, close the associated PORV isolation valves.

- 3.3 Ensure the CA System flow to Steam Generators. If not, manually start the motor driven CA Pumps.

NOTE If the CA Pumps receive an auto-start signal depress the Train "A" and Train "B" CA Modulating Valves Resets in order to regulate flow to the steam generators.

- 3.4 Select "Reset" on the Moisture Separator Reheater Panel and prepare the MSR's for a hot start or shutdown per OP/1/B/6250/11 (Moisture Separator Reheater).
  - 3.5 Verify no-load PZR level (25%) and Pressure (2235 psig) are restored and maintained. Verify charging and letdown flow normal.
  - 3.6 Verify Tave is maintained greater than or equal to 557°F and less than 562°F.
  - 3.7 Verify Steam Generator levels are in the narrow range and S/G pressures are approximately 1090 psig.
  - 3.8 Announce occurrence over plant paging system.
  - 3.9 Note the cause of the trip on the first out panel before resetting the alarm.
  - 3.10 If all rods are not fully inserted, borate 150 ppm for each rod not inserted per OP/1/A/6150/09 (Boron Concentration Control).
  - 3.11 Transfer NR-45 to one source range channel and one intermediate range channel for indication. Ensure a negative period and decaying count rate.
- CAUTION Ensure Primary and Secondary Systems have stabilized before transferring Steam Dump Controller to Pressure Mode.
- 3.12 Place or verify the Steam Dump M/A Station in AUTO. Transfer Steam Dump Controller to PRESSURE MODE. Verify steam dumps operate to control steam pressure at approximately 1092 psig.
  - 3.13 Verify Volume Control Tank level is being maintained.
  - 3.14 Reset Hi Flux at Shutdown Alarm when neutron flux decreases below setpoint.

- 3.15 Notify Chemistry to obtain a NC System boron sample. Perform a reactivity balance calculation and maintain a shutdown margin equal to or greater than 1.6% Delta k/k-per OP/0/A/6100/06 (Reactivity Balance Calculation).
- 3.16 Notify Plant Manager or Superintendent of Operations per Station Directive 3.1.6 (Notifying Management of Operating Conditions).
- 3.17 Notify NRC Operation Center by ENS phone within one hour as described in Station Directive 3.1.4 (Conduct of Operations).
- 3.18 Place boilers in operation per OP/0/B/6250/07B (Electric Boilers) as necessary.
  - 3.18.1 Close 1AS-9 (C Htr. Bleed to AS). As 1AS-120 (Aux. Elec. Blr. A & B to AS Isol.) is opened slowly, throttle close 1AS-12 (SM to AS).
- 3.19 Shutdown the MG sets per OP/1/A/6150/08 (Rod Control).
- 3.20 Reset the "Negative Rate Trip" bistables on the power range drawers.
- 3.21 Close the reactor trip breakers.
- 3.22 Take manual control and close the following valves:
  - 1CF-32 (A S/G CF Cntrl. Vlv.)
  - 1CF-23 (B S/G CF Cntrl. Vlv.)
  - 1CF-20 (C S/G CF Cntrl. Vlv.)
  - 1CF-17 (D S/G CF Cntrl. Vlv.)
  - 1CF-104 (A S/G CF Cntrl. Vlv. Bypass)
  - 1CF-105 (B S/G CF Cntrl. Vlv. Bypass)
  - 1CF-106 (C S/G CF Cntrl. Vlv. Bypass)
  - 1CF-107 (D S/G CF Cntrl. Vlv. Bypass)
- 3.23 Reset Train A & B CF Isolation.

- 3.24 Open the following valves:  
ICF-126-B (A S/G CF to CA Nozzle Isol.)  
ICF-127-B (B S/G CF to CA Nozzle Isol.)  
ICF-128-B (C S/G CF to CA Nozzle Isol.)  
ICF-129-B (D S/G CF to CA Nozzle Isol.)
- 3.25 Start a Feedwater Pump per OP/1/A/6250/01 (Condensate and Feedwater System) and secure Auxiliary Feedwater per OP/1/A/6250/02 (Auxiliary Feedwater System) when desired and maintained steam generator levels at no load value.
- 3.26 If thermal power output was greater than 15% at time of reactor trip, notify Primary Chemistry to perform isotopic analysis for iodine in accordance with Tech Spec 4.4.9. Note that this sample must be taken and analyzed no sooner than 2 hours after the trip and no later than 6 hours after the trip.
- 3.27 Notify HP to perform required radioactive gaseous waste sampling in accordance with Tech Spec 4.11.2.1.2.
- 3.28 Notify Projects and Licensing Engineer to contact site NRC inspector and inform of trip. If P&L engineer cannot be reached then notify site NRC inspector of trip.
- 3.29 Determine the cause of the reactor trip and correct the problem. If restart is desired, proceed to OP/1/A/6100/05 (Unit Fast Recovery).
- NOTE If Reactor Trip occurred during startup and less than 15% power, restart may commence per OP/1/A/6100/01 (Controlling Procedure for Unit Startup).
- 3.30 If shutdown is necessary, proceed to OP/1/A/6100/02 (Controlling Procedure for Unit Shutdown).