

VOLUME 5

FNP-1-EOP-5.0  
June 30, 1983  
Revision 7FARLEY NUCLEAR PLANT  
EMERGENCY OPERATING PROCEDURE  
FNP-1-EOP-5.0**DRAFT**

REACTOR TRIP

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Operations Superintendent

Date Issued: \_\_\_\_\_

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FARLEY NUCLEAR PLANT  
UNIT 1  
EMERGENCY OPERATING PROCEDURE EOP-5.0  
REACTOR TRIP

1.0 Purpose

This procedure provides Symptoms, Automatic Actions, Immediate Operator Actions and Subsequent Operator Actions required for a reactor trip.

2.0 Symptoms

2.1 A reactor trip condition on the First-Out Annunciator panel.

OR

2.2 Trip Status Light Box bistables meeting the required coincidence for a reactor trip.

OR

2.3 Parameter Indicators having reached a reactor trip setpoint.

3.0 Automatic Actions

3.1 Reactor Trip-Turbine Trip

3.2 Turbine Trip-Generator Trip

NOTE

When a step is completed place the operators initial or the value noted in the space provided in the left hand margin.

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4.0 Immediate Operator Actions

- 4.1 Verify all full length rods fully inserted and nuclear power decreasing. IF NOT confirm a valid reactor trip by Trip Status Light Box bistables meeting the required coincidence for a reactor trip OR Parameter Indicators indicating a reactor trip. IF confirmed, THEN manually trip the reactor. IF all full length rods NOT fully inserted OR nuclear power NOT decreasing, refer to EOP-15.0.
- 4.2 Verify the main turbine is tripped. If not, refer to EOP-15.
- 4.3 Verify RCS temperature is stable or decreasing.
- 4.4 Verify 4160V buses 1A, 1B, 1C, 1D and 1E energized on the S/U transformers.

5.0 Subsequent Operator Actions

- 5.1 Indicate the position of the Reactor Trip and Bypass Breakers immediately following the trip by circling the appropriate response, and record Date/time and initials. Manually open any breaker which failed to automatically open.

Reactor Trip Breakers		Trip Bypass Breakers	
A- OPEN	CLOSED	A- OPEN	CLOSED
B- OPEN	CLOSED	B- OPEN	CLOSED
Date/Time _____		Initials _____	

- 5.2 Announce on the plant paging system "Unit 1 Reactor Trip."
- 5.3 Trip the main feedwater pumps.
- 5.4 Start or verify started the motor driven Auxiliary Feedwater pumps. Feed as necessary to recover steam generator levels to 30 to 40 percent in the narrow range and minimize the effect on  $T_{avg}$  of the cold water into the Steam Generators.
- 5.4.1 If MDAFW pumps started automatically regain control of the FCV's per FNP-1-SOP-22.0.
- 5.4.2 If the TDAFW pump started, regain control of its FCV's and the turbine per FNP-1-SOP-22.0.

CAUTION

With insufficient decay heat available overfeeding the steam generators will result in excessive cooldown with no apparent increase in Steam Generator level. AFW flow must be balanced to limit the cooldown rate and regain the steam generator level.

5.4.3 If Condensate Storage Tank level decreases to four (4) feet and Auxiliary Feedwater is required to maintain plant conditions shift the Auxiliary Feedwater pumps suctions to Service Water per FNP-1-SOP-22.0.

5.5 Verify proper steam dump operation and if  $T_{avg}$  is less than or equal to 547°F, verify controller PK464 in manual and demand on the steam pressure controller is adjusted to a setpoint of 1005 psig and place the steam dump mode selector switch to the pressure position and place in Auto Manual controller PK464 in automatic.

5.5.1 If one or more steam dump valves fail to close and cannot be shut from the MCB prepare to shut the Main Steam Isolation Valves.

5.6 If the condenser is not available verify proper operation of the atmosphere relief valves.

5.7 The following should be done as rapidly as possible and not necessarily in order.

5.7.1 Transfer NR-45 to intermediate range and insure proper power decay.

5.7.2 Isolate main steam drain pots by closing N1N11V555 A, B, C and D.

5.7.3 If the second stage of the MSR's are in operation push Reset on the Reheat Control Panel.

5.7.4 Secure Auxiliary Steam to Unit 2. Evaluate the need for isolating steam to the Auxiliary Building, and if necessary secure steam to the Auxiliary Building.

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- \_\_\_\_\_ 5.7.5 Secure Heater Drain Pumps 1A and 1B.
- \_\_\_\_\_ 5.7.6 Secure all but one Condensate pump.
- \_\_\_\_\_ 5.7.7 If  $T_{ave}$  decreases to  $543^{\circ}\text{F}$  block the steamline low pressure safety injection.
- \_\_\_\_\_ 5.7.8 Maintain Pressurizer pressure and level at the no-load values.
- \_\_\_\_\_ 5.7.9 Secure one steam jet air ejector.
- \_\_\_\_\_ 5.7.10 Verify Steam Generator Blowdown is isolated.

CAUTION

The intent of closing the MSIV's in Step 5.7 is to regain control of the cooldown rate and ensure against exceeding  $100^{\circ}\text{F}$  cooldown in one hour. If cooldown rate is under control, but temperature is decreasing the Shift Supervisor may decide not to shut the MSIV's until a lower temperature is reached.

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- \_\_\_\_\_ 5.8 If  $T_{avg}$  rapidly decreases to  $500^{\circ}\text{F}$  close the MSIV's as follows:
  - \_\_\_\_\_ 5.8.1 Break condenser vacuum.
  - \_\_\_\_\_ 5.8.2 Isolate gland sealing steam.
  - \_\_\_\_\_ 5.8.3 Close the MSIV's.
- \_\_\_\_\_ 5.9 Refer to FNP-1-SOP-28.1 to complete Turbine Generator shutdown.
- \_\_\_\_\_ 5.10 Complete plant shutdown to Hot Standby per FNP-1-UOP-2.1.
- \_\_\_\_\_ 5.11 Start up Auxiliary Boiler using FNP-1-SOP-55.0 if required.



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FARLEY NUCLEAR PLANT  
EMERGENCY OPERATING PROCEDURE  
FNP-1-EOP-15.0

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ANTICIPATED TRANSIENTS WITHOUT TRIP (ATWT)

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Approved:

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Operations Superintendent

Date Issued: \_\_\_\_\_

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FARLEY NUCLEAR PLANT  
UNIT 1  
EMERGENCY OPERATING PROCEDURE EOP-15.0  
ANTICIPATED TRANSIENTS WITHOUT TRIP (ATWT)

1.0 Purpose

This procedure provides guidelines for operator action in the event a reactor trip and/or turbine trip does not occur automatically if either trip is required.

2.0 Symptoms

2.1 Entry from EOP-5.0

2.2 Failure to obtain a turbine trip following a turbine trip signal as indicated by the turbine throttle valves NOT closed.

3.0 Automatic Actions

None

NOTE

When a step is completed place the operators initial or the value noted in the space provided in the left hand margin.

4.0 Immediate Operator Actions

4.1 Reactor does not trip:

\_\_\_\_\_ 4.1.1 Open the supply breakers for the MG sets with main control board handswitches. If not successful, then: Emergency Borate and Drive Rods in.

\_\_\_\_\_ 4.1.2 Go to local panel and manually open and rack out Reactor trip breakers and Reactor trip bypass breaker.

4.2 Turbine does not trip:

\_\_\_\_\_ 4.2.1 Attempt to manually trip the turbine from the Main Control Board. IF the turbine does not trip, then:

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4.2.2 De-energize the E.H. Pumps 1A & 1B from the Main Control Board. Start all available auxiliary feed pumps and throttle as necessary to maintain S/G level in the narrow range. IF a turbine trip has not occurred, then:

4.2.3 Close the MSIV's.

5.0 Subsequent Operator Actions

5.1 IF following an automatic turbine trip signal, the turbine does not trip and causes an uncontrolled cooldown, emergency borate in accordance with EOP-6.0.

5.2 When a reactor trip does occur, refer to EOP-5.0.

5.3 When a turbine trip does occur, refer to AOP-3.0.

5.4 IF a safety injection signal occurs, refer to EOP-0.

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