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OFR UNIT #1
REACTOR TRIP
OP 1202 04

1. PURPOSE:

This procedure provides the necessary steps to be performed following a reactor trip.

2. DESCRIPTION:

Reactor protection system trip setting limits are listed in table 1202.04-1.

3. LIMITS AND PRECAUTIONS:

- 3.1 Any hand/auto station in the ICS that would prevent feed water from responding to automatic signals must be controlled by the operator.
- 3.2 Do not reset reactor trip until after the turbine bypass valves have been placed in manual.
- 3.3 In the event of a sudden and rapid unexplained decrease in the reactor coolant system pressure and pressurizer level, follow OP 1202.06, loss of reactor coolant/reactor coolant pressure.

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4. PROCEDURE

4.1 Symptoms:

1. Reactor trip alarm.
2. Individual and group "in lights" actuate.
3. Rapid decrease in neutron level indicated by nuclear instrumentation.
4. Turbine trip alarm.
5. Rapid decrease in unit load.

4.2 Immediate Action:

1. Verify that all rods, except group 8, are at their "in limit". If any rods are not at their in limit, manually trip the reactor.
2. Verify that the turbine has tripped. If the turbine has not tripped, manually trip the turbine.
3. Close the letdown isolation valve.
4. Monitor pressurizer level and maintain greater than or equal to 100". Start second makeup pump as necessary.
5. Verify that turbine bypass control valve setpoint transferred to setpoint +125 PSIG.
6. Verify ICS transfers to track and that feedwater flow control responds properly if in auto. If in hand take appropriate action.

4.3 Follow up Action:

1. Notify the shift supervisor.
2. Perform reactivity balance calculation according to OP 1103 15, reactivity balance calculation, to insure sufficient shutdown margin (> 1 percent $\Delta K/K$). If necessary, borate according to OP 1103 04 soluble poison concentration control.
3. Turbine plant.
Follow OP 1202 02, turbine trip.
4. Feedwater and OTSG level.
 - a. Verify that at least OTSG minimum level (30 inches on the start up range) is maintained by the start up control valves in auto.

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- b. Secure one main feedwater pump if both pumps are on line.
- c. In the event of a loss of both main feedwater pumps, verify the following:
 - 1. The steam driven emergency feed pump starts.
 - 2. Main and SU feedwater block valves close.
 - 3. The emergency blocks and the emergency feedpump discharge valves open.
- 5. Monitor makeup tank level and maintain level greater than 55 inches by feeding from bleed holdup tank that has a boron concentration greater than or equal to RC system boron concentration.
- 6. Reactor coolant pressure.
 - a. Verify that the reactor coolant pressure returns to normal operating pressure.
 - b. In case of high pressure, verify that pressurizer spray has actuated at 2205 PSIG (if reactor coolant pumps are on) and power actuated relief valve opens at setpoint (2255 PSIG).
- 7. Main steam pressure.
 - a. If low condenser vacuum inhibits bypass steam flow, verify that atmospheric exhaust valves actuate and that turbine bypass valves are closed.
- 8. Reactor coolant flow.
 - a. Verify that the reactor coolant flow is maintained at normal value.
 - b. In the event all four reactor coolant pumps trip, follow OP 1202 14 loss of RC flow - RC pump trip.
- 9. Neutron level.

Verify that neutron level is decreasing and that high voltage to source range nuclear instrumentation is automatically energized at preset level (5×10^{-10} AMP).
- 10. Condensate pumps.

Stop all but one main condensate pump.

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11. Heater drain pumps, feedwater system.
Stop all heater drain pumps.
- *12. Request a post trip review output from the plant computer.
13. Investigate to determine exact cause(s) of trip.
14. Correct cause(s) of trip.
15. Lower pressurizer level setpoint to 100 inches (25%)
if hot shutdown status is to be maintained versus cooling
down.
16. Take manual control of turbine bypass valves and gradually
decrease header pressure to 885 psig. Maintain pressurizer
level and makeup tank level within limits while decreasing
pressure/cooling down.