

PG&E

Pacific Gas and Electric Company

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DEPARTMENT OF NUCLEAR PLANT OPERATIONS
 DIABLO CANYON POWER PLANT UNIT NO(S) 1 AND 2

EMERGENCY OPERATING PROCEDURE
 TITLE ANTICIPATED TRANSIENT WITHOUT TRIP (ATWT)

APPROVED _____
 PLANT MANAGER

SCOPE

This procedure describes the steps to be taken in the event of an ATWT. An ATWT is a failure of the reactor protection system to trip the rods in when one or more reactor trip setpoints have been reached.

SYMPTOMS

1. Reactor trip point exceeded without a reactor trip.
2. Possible Reactor Protection System activated alarm.
3. Possibly the reactor trip alarm.
4. DRPI indicates no rods drop.
5. RCS Hi pressure and level alarm.
6. NIS continues to read upscale.

AUTOMATIC ACTIONS

1. PZR PORVs open.
2. PZR spray valves open.
3. PZR safety valves open.
4. Steam dump activated.

OBJECTIVES

1. Ensure the reactor is shutdown.
2. Provide a heat sink for the reactor.

IMMEDIATE OPERATOR ACTIONSACTIONS

1. Manually trip the reactor.
 - a. Verify rod bottom lights on DPRI.
 - b. Verify NIS decreasing.

COMMENTS

1. Use the red handle.



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ACTIONS

2. If the rods fail to drop after Step 1 above, open the 480 Volt LC 13 D and E breakers 52 HD 13 and 52 HE-4.
3. If the rods fail to drop after Step 2 above, close the BIT Recirc. Valves (8807A and B, and 8911), open the BIT inlet and outlet valves (8803A and B, and 8801A and B) and start both centrifugal charging pumps.
4. Trip the turbine manually if required.
5. If the turbine fails to trip after Step 4 above, trip the turbine using the trip lever on the turbine pedestal.
6. Verify all three auxiliary feedwater pumps running.

SUBSEQUENT OPERATOR ACTIONS

1. Sound the Site Emergency Alarm.
2. Verify steam dump operating to the condenser or 10% atmosphere steam dumps open. Transfer steam dump to the steam pressure mode with a 1005 psig setpoint.
3. Verify that at least one RCP is operating. If not, start as many as possible.
4. Check all rod bottom lights on, emergency borate 100 ppm for any stuck out rod.

If no rods have inserted, emergency borate the RCS until 2000 ppm is achieved.

COMMENTS

2. This will deenergize the load centers supplying power to the rod control MG sets.
3. If the BIT is injected and the rods remain out of the core, it is important to keep the RCP's in service and maintain hot standby conditions. A cooldown could allow the reactor to return to criticality.
4. With the reactor protection system failed, the P-4 signal is not present to trip the turbine.
6. Manually start pumps if required.
2. Monitor the heat sink (steam dump) closely after this transient.
3. RCP seals should be observed closely as the RCS Hi pressure may have affected them.
4. RCS Boron concentration is increased approximately 100 ppm with 45 gpm boration flow for approximately 6 to 7 minutes.

ACTIONSCOMMENTS

5. Check the gross failed fuel detector for any signs of fuel damage.
 6. Monitor steam generator water levels, air ejector off gas and steam generator blowdown radiation monitors for any indication of a steam generator tube rupture.
 7. Monitor RCS parameters.
 - a. Tavg should return to 547°F.
 - b. PZR level should remain above 22%.
 - c. RCS pressure should remain above 1950 psig.
 8. If pressurizer pressure decays below 1900 psig:
 - a. Verify closed all PORV's (close the backup valve if a PORV is found open.)
 - b. Verify closed the PZR spray valves. (Close any valve found open.) If the valve will not close, trip the associated RCP to prevent further spray.
 9. Monitor all SI initiation parameters (PZR pressure, containment pressure, etc.) for SI conditions. If any parameter exceeds the SI initiation setpoint, manually initiate safety injection and proceed to OP-0.
 10. If manual initiation of SI fails, proceed to OP-0 and perform all Immediate Operator Actions Steps using manual control.
6. The leak may occur as a result of the RCS Hi pressure during the transient.
 - a. The Hi pressure transient may have stuck open a PORV.
 9. With a failure in the Reactor Protection System, the automatic SI initiation is in doubt.

ACTIONSCOMMENTS

11. If SI is not required, proceed as follows:
- a. Verify closed or close feedwater control valves when Tavg reaches 554°F.
 - b. Transfer the NIS recorder to monitor one IR and one SR channel.
 - c. Check the turbine-generator coasting down properly.
 - 1) All turbine drain valves open.
 - 2) The AC bearing oil pump and the high pressure seal oil backup pump start automatically.
 - 3) The lift pump starts at about 600 RPM.
 - 4) The turning gear engages automatically at or near zero speed.
 - d. Maintain condenser vacuum; if vacuum is lost, use the 10% atmospheric dump valves to control steam generator pressure.
 - e. Establish and maintain hot standby operation, verify shutdown margin per STP R-19 (Shutdown Margin Calculation), and adjust RCS Boron concentration if necessary.
 - f. If condenser vacuum is lost, check the level in the condensate storage tank to determine how long the unit can be maintained in hot standby prior to going to cold shutdown.
 - g. Prepare to take the plant to cold shutdown conditions.
- a. If the P-4 signal failed, auto closure of these valves may not occur.

APPENDIX Z
EMERGENCY PROCEDURE NOTIFICATION
INSTRUCTIONS

1. When this emergency procedure has been activated and upon direction from the shift foreman proceed as follows.
 - a. Notify the Plant Superintendent and Supervisor of Operations or their designated alternates.
 - b. Designate this event a Site Emergency. Notify those agencies given in General Appendix 2 of the Emergency Procedures (Notification of Outside Agencies in the Event of an Emergency).
 - c. Within one hour notify the MRC Operations Center using the red phone in the control room. Gather sufficient information from all sources prior to calling so that the phone call is meaningful. Notify the NRC that your call is pursuant to 10 CFR Part 50.72, (Notification of Significant Events).