

ACME Procedure		OPS-0004-B	
Title:	ACME Unit 1 Shut down procedure		
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Summary

This procedure provides a step by step instruction for ACME Power Unit 1 shut down. It shall be used as a reference each time this plant is started and a record kept of plant start up progress and any issues, events or error for future improvements.

Shutdown (normal)

1. REDUCE pulveriser A and pulveriser B coal flow controller (1HFB10CQ001 and 1HFB20CQ001) to 20 t/hr each. This should be done slowly whilst observing the generator MW output (1MAB50CE001).
2. START plant fuel oil supply system (0EGC10AP001 ON). Note: this will start the fuel oil forwarding pump (0EGC10AP001) and once discharge pressure has reached a certain valve select pressure control valve (0EGC10AA251) to automatic control.
3. START fuel oil burner (1HHA10AV001 ON). Note: once fuel oil burner flame is lit, the burner can be controlled by adjusting the controller (1HHA10CQ001). For now leave controller at 10%.
4. REDUCE pulveriser A coal flow controller (1HFB10CQ001) to 10 t/hr.
5. STOP pulveriser A (1HFC10AV001 OFF).
6. REDUCE pulveriser B coal flow controller (1HFB20CQ001) to 10 t/hr.
7. STOP pulveriser B (1HFC20AV001 OFF).
8. STOP electrostatic precipitator (1HDE10AT001 OFF)
9. MONITOR generator MW output (1MAB50CE001) as it reduces.
10. MONITOR when MW output (1AMB50CE001) is below zero the turbine will TRIP on REVERSE POWER (code - 10017).
11. As the turbine rotor speed decreases the following will occur in succession;
 - (a) turbine jacking oil pump (1MAV20AP001) will START when rotor speed is <1500 rpm.
 - (b) turbine turning gear motor will START when rotor speed is <500 rpm.
 - (c) turbine turning gear will ENGAGE as turbine rotor speed is <2 rpm.
12. STOP fuel oil burner (1HHA10AV001 OFF). Note: this will result in a boiler TRIP.

13. RESET generator circuit breaker (1MKA10GS001) reverse power relay.
14. If immediate restart is not planned then continue;
 - (a) STOP condenser vacuum pump (1MAJ10AP001 OFF). Note: this will stop the condenser vacuum pump (1MAJ10AP001) and open the condenser vacuum breaker valve (1MAG10AA401) and vacuum will quickly dissipate.
 - (b) STOP gland steam system (1MAW10GH001 OFF). Note: gland steam control valve (1MAW10AA251) will CLOSE and gland steam exhaust fan (1MAW10AN001) will STOP. Gland steam pressure (1MAW20CP001) will reduce slowly to 0 mbar.
 - (c) SELECT furnace air flow controller (AirFlow (AUTO)) to manual. Note: this will cause ID and FD fans to decrease in load until boiler airflow is 0%.
 - (d) STOP forced draught fan (1HLB10AN001 OFF).
 - (e) STOP induced draught fan (1HNC10AN001 OFF).
 - (f) STOP plant fuel oil supply system (0EGC10AP001 OFF).
 - (g) STOP turbine control oil pump (1MAX10AP001 OFF).
 - (h) STOP condenser cooling water pump (1PAB10AP001 OFF).
 - (i) SELECT steam drum filling to manual (LAC (FWP-AUTO)).
 - (j) STOP feedwater pump (1LAC10AP001 OFF).
 - (k) SELECT deaerator filling to manual (LCB (CEP-AUTO)).
 - (l) STOP condensate extraction pump (1LCB10AP001 OFF).
15. If however you plan to restart the turbine immediately or after a short time period please go directly to the Warm or Hot start procedure.
16. If turbine rotor metal temperature (1MAB50CT005) is <120 deg C;
 - (a) STOP turbine turning gear (1MAK10AE001 OFF).
 - (b) STOP turbine jacking oil pump (1MAV20AP001 OFF). Note: turbine speed must be <2 rpm.
 - (c) STOP turbine lube oil pump (1MAV10AP001 OFF).
17. If Boiler back pass temperature (1HNA50CT001) is <120 deg C;
 - (a) STOP rotary airheater (1HLD10AC001).

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