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PORC CHAIRMAN
UNIT 1

THREE MILE ISLAND NUCLEAR STATION
UNIT #1 ABNORMAL PROCEDURE 1203-41
LOW SYSTEM (GRID) VOLTAGE

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Unit 1 Staff Recommends Approval

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Cognizant Dept. Head

Unit 2 Staff Recommends Approval

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Cognizant Dept. Head

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Unit 2 PORC Recommends Approval

N/A Date —

Chairman of PORC

Unit 1 Superintendent Approval

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THREE MILE ISLAND NUCLEAR STATION
UNIT #1 ABNORMAL PROCEDURE 1203-41
LOW SYSTEM (GRID) VOLTAGE

1.0 SYMPTOMS

1.1 Low system voltage substation voltmeters, (less than 3700 volts on the 4 KV busses or less than 420 volts on 480 V busses).

1.2 Possible "480V Bus P.T. Trouble" alarm.

1.3 480V motors may start tripping when system (grid) voltage approaches 220 KV (232 KV if only one aux transformer is energized). The 480V UV relays operate at ∿410V.

2.0 IMMEDIATE ACTION

2.1 AUTOMATIC ACTION

2.1.1 Motors may trip on under voltage or overcurrent.

2.1.2 D and/or E Bus will trip and diesel will start and energize bus at ∿3588V on the affected bus.

2.2 MANUAL ACTION

2.2.1 Start both diesel generators.

NOTE: Do not attempt to parallel the diesel generator with the system, it may not be possible to match system voltage and still satisfy the up-to-voltage interlock for the closing the diesel generator breaker.

Refer to OP 1107-2 Section 2.4.2 for automatic action on a Bus trip.

2.2.2 If 480V bus voltage is <420V, transfer the associated 4 KV to the diesel as follows:

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a. Verify diesel generator READY TO LOAD light, voltage and frequency normal. (4000 to 4200V, 59 to 61 Hz)

b. Verify the alternate IC pump is on so that RCP seal cooling will be maintained.

c. If the running Make-Up Pump will be tripped, close MU-V3, MU-V17, and MU-V32 and stop the MU-Pp.

d. Trip the 4 KV Bus feeder breaker and allow the diesel breaker to close.

e. Restart equipment as needed.

1. Makeup pump: restore seals, makeup and letdown
2. Nuc Serv Closed Cooling
3. Nuc Serv River
4. Sec Serv River
5. Sec Serv Closed
6. Intermediate Closed

2.2.3 Verify that main generator VARS are flowing out (positive). (i.e., no exciter malfunction)

CAUTION: Reducing VARS out flow may further reduce substation voltage. Do not reduce excitation unless VAR limit is exceeded.

2.2.4 Verify that at least two 230 KV lines are in service.

2.2.5 If necessary to avoid tripping essential motors reduce load on the auxiliary transformers as follows:

a. Trip 2 circulating water pumps (watch condenser vacuum).

b. Trip any non essential condensate, condensate booster, or heater drain pumps (depends on % power level).

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3.0 FOLLOWUP ACTION

Objective; To put the ES busses on the diesel to assure adequate voltage is available to ES loads, reduce load on the auxiliary transformer, and restore system voltage to normal.

3.1 Notify the dispatcher and determine status of the 230 KV system.

3.2 If applicable, return the second auxiliary transformer or additional 230 KV lines to service.

3.3 Avoid starting large motors that would cause additional voltage dip.

3.4 Reduce non essential lighting, heating, ventilation loads to minimum.

3.5 If unable to maintain the required equipment in service for safe operation or for Tech Spec reduce load and/or trip the reactor.

NOTE: In a degraded voltage condition Main Generator Trip may result in a station blackout.