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THREE MILE ISLAND NUCLEAR STATION
UNIT #2 ABNORMAL PROCEDURE 2203-1.2
CRD EQUIPMENT FAILURE

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Unit 1 Staff Recommends Approval

Approval N/A Date —

Cognizant Dept. Head

Unit 2 Staff Recommends Approval

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Cognizant Dept. Head

Unit 1 PORC Recommends Approval

N/A Date —

Chairman of PORC

Unit 2 PORC Recommends Approval

J F Ulrich Date 9/22/78

Chairman of PORC

Unit 1 Superintendent Approval

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Unit 2 Superintendent Approval

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Manager Generation Quality Assurance Approval N/A Date —

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THREE MILE ISLAND NUCLEAR STATION

UNIT #2 ABNORMAL PROCEDURE 2203-1.2

CRD EQUIPMENT FAILURE

MOTOR FAULT

1.0 SYMPTOMS

A. Motor fault lamp on the CRD operators console (Panel 4).

B. Position indication shows in or out motion with no command or out motion with In command for one or more groups of rods (Panel 14).

C. Unexpected increase in reactor power, temperature, and pressure (Panel 4).

D. Possible sequence inhibit indication (Panel 4).

2.0 IMMEDIATE ACTION

A. Automatic Action

1. The CRD control panel reverts to manual.

B. Manual Action

1. Verify that the CRD operators console is in manual
2. Select jog speed.
3. If out motion continues, place the Manual Command Switch in the insert position.

3.0 FOLLOW UP ACTION

A. If uncontrolled out motion continues, trip the reactor.

B. If placing manual command switch in the insert position stops rod withdrawal, deenergize the programmer motor as follows:

1. Locate and remove the fuse on the 120V AC distribution panel that feeds the programmer for the affected group. The 120V AC distribution cabinet is located in the secondary DC hold power supply cabinet.

Group	Fuse
5	F7
6	F8
7	F9
8	F10
Aux	F11

NOTE: Removing the above fuses deenergizes the main programmer lamps as well as the power to the programmer drive motors. The secondary lamps must be operational to avoid tripping that group of rods.

C. If a sequence inhibit has occurred:

1. Select the affected group on the Group Select Switch (Panel 4).
2. Press sequence bypass.
3. Press transfer reset.
4. Continue to hold the manual command switch in the insert position.

D. If the motor fault occurred without excessive out motion, check the DC Brake Power Supply fuse (F2) on the Programmer Control Assembly..

E. If the power supply is faulty, transfer the group to the auxiliary supply and continue operation using the aux supply as the group supply.

NOTE: If the aux supply has a motor fault, the fuse (F-11) on the 120V AC Distribution Panel must be used to synchronize the supply to make the transfer.

STATOR HIGH TEMPERATURE

1.0 SYMPTOMS

A. Computer printout of the affected mechanism giving the stator temperature (Annunciator Group A10).

B. Possible low CRD cooling flow indicated on Panel 8, Annunciator A15.

C. Possible IC cooling CRD filter differential pressure high on Panel 8, Annunciator B15.

D. Possible CRD temperature high on Panel 8 Annunciator C15.

2.0 IMMEDIATE ACTION

A. Automatic Action

B. Manual Action

1. Close MU-V1A, B if CRD outlet temp is > 160°F as indicated by Annunciator Group A10 from computer.
2. Check the IC system for Δp across the filter for the CRD system.
3. Start standby IC pump and/or valve in standby CRD filter to provide continued CRD cooling, if required.

3.0 FOLLOW UP ACTION

A. Place the temperature input of the affected mechanism on an analog trend recorder of the computer and reset the alarm point for that computer input to 170°F.

B. Observe the stator temperature on analog trend recorder. If the temperature is between 160°F and 170°F and constant, continue normal operation.

C. If the stator temperature is above 170°F and rising, deenergize the mechanism as follows:

1. Reduce power to 60% of the thermal power allowed for the RC pump combination.
2. Bypass the asymmetric rod alarm for the mechanism using the S2 switch and the PI amplifier for the affected CRD.
3. Transfer the rod to the auxiliary supply, drive it to the in limit and deenergize the mechanism by removing the programmer lamp fuses for the aux supply. (Fuse F1 and F3 on the programmer control assembly). Observe Tech. Spec limits on tilt (T.S.3.2.4) and assymetric rods (TS 3.1.3.1).

   CAUTION: Do not pull the motor output fuse on energized phases. Severe flashing may occur. If necessary, check with a voltmeter that each phase is deenergized.
4. Pull the motor output fuses located in the transfer cabinets for the mechanism and replace the programmer lamp fuses.

D. If the stator temperature reaches 180°F, immediately deenergize the mechanism as follows:

1. If not already on the auxiliary power supply, transfer the rod to the auxiliary supply and deenergize the mechanism by removing the programmer lamp fuses for the auxiliary supply. (Fuse F1 and F3 on the programmer control assembly,) Observe Tech. Spec. Limits on tilt (T.S. 3.2.4) and asymmetric rods (T.S.3.1.3.1).