

R. Conte

STARTUP TEST REVISION

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TEST PROCEDURE TITLE	CONTROLLING PROCEDURE FOR OTSG REPAIR TESTING	DATE 09/15/83 TP NO. TP 600/2 REV. NO. STR-1
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REASON FOR CHANGE : (a) To clarify method of establishing Feedwater flow rate.

(b) To change to two (2) RCP's during cooldown vs. three (3).  
Two (2) RCP's is normal procedure for OP 1102-11.

(c) To assure Chemistry Manager reviews and approves OTSG  
chemistry prior to commencing cooldown.

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INSTRUCTION FOR ENTERING CHANGE

Remove: Cover Page, Rev 0; Table of Effective Pages, 1; Pages 16a, 17 and 87.

Insert: Cover Page, STR-1; Table of Effective Pages, 1; Pages 16a, 17 and 87,  
Effective Page STR-1

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CHANGES ENTERED

I certify that all changes have been accurately entered into the test procedure:

The following replaced pages of the Official Field/Office Copy are attached:

OFFICIAL FIELD COPY \_\_\_\_\_ DATE \_\_\_\_\_

OFFICIAL OFFICE COPY \_\_\_\_\_ DATE \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_

THREE MILE ISLAND UNIT 1

CLASS 1

CONTROLLING PROCEDURE

NUMBER TP 600/2

CATEGORY A

FOR

MTX 600.5.1.7

OTSG REPAIR TESTING

REVISION STR-1

PREPARED: Cognizant Engineer L. D. Pater

Date 9/15/83

RESPONSIBLE TECHNICAL REVIEWER:

Signature J. M. Hawkins

Date 9-15-83

IMPLEMENTATION APPROVAL:

Signature J. M. Hawkins

Date 9-16-83

O&M DIRECTOR CONCURRENCE:

Signature G. Toole

Date 9-16-83

APPROVAL OF TEST RESULTS:

SU & T Representative \_\_\_\_\_

Date \_\_\_\_\_

ENCLOSURES:

1. Test Exception and Deficiency List
- 1A. Questions for Test Exception Acceptability
2. Quality Control Witness Signoff Sheet
3. OP 1102-1, Plant Heatup to 532°F (Modified by TP 600/2)
4. OP 1102-11, Plant Cooldown (Modified by TP 600/2)
5. EP 1202-5, OTSG Tube Leak/Rupture (Modified by TP 600/2)
6. OTSG Repair Testing Sequence
7. Heatup and Cooldown Computer Points
8. OTSG Leak Rate Data Sheets
9. General Emergency Operating Guidelines for HFT Program

TABLE OF EFFECTIVE PAGES

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3	0	34	0	65	0
3a	0	35	0	66	0
4	0	36	0	67	0
5	0	37	0	68	0
6	0	38	0	69	0
7	0	39	0	70	0
7a	0	40	0	71	0
8	0	41	0	72	0
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15a	0	49	0	80	0
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TMI UNIT I  
TP 600/2

9.0 TEST METHOD (Cont'd.)

- \_\_\_\_\_ 9.5.3 To accomplish the desired cooldown rate and approach the 140°F  $\Delta T$  limit proceed as follows:

NOTE: Ensure MFW flow is not interrupted to both steam generator MFW nozzles.

- \_\_\_\_\_ 9.5.3.1 At hot shutdown conditions and three RC pumps running, reduce MFW flow to approximately 30 to 40 gpm per OTSG by establishing stable OTSG level with FW-V-85 A/B and with FW-V-16 A/B closed. Start the fourth RCP and boil water down to low level setpoint. When the low level setpoint is reached, trip one (1) RCP and place FW-V-16 A/B in auto level control mode. Maintain constant OTSG pressure and constant RCS  $T_{ave}$  during the boildown.

STR-1

Hold conditions with three (3) RCP's operating and OTSG at the low level setpoint until plant conditions and chemistry are stable.

Unit 1 Chemistry Manager has reviewed and approves OTSG chemistry for cooldown.

Signature \_\_\_\_\_ Date \_\_\_\_\_  
(Chemistry Manager)

NOTE: Place main steam line rupture detection enable/defeat switches (four) in defeat prior to reaching 600 psig.

- \_\_\_\_\_ 9.5.3.2 Secure one RCP and using the startup valves in auto, adjust TB valve setpoint to smoothly decrease each OTSG pressure from 900 to 600 psig in first 30 minutes. This should cause  $T_{ave}$  to decrease at approximately 90F/hour.

- \_\_\_\_\_ 9.5.3.3 Monitor (Step 9.5.1) average shell temperature,  $T_{ave}$ , and tube-to-shell  $\Delta T$  every ten (10) minutes, and be sure  $\Delta T$  never exceeds 140F.

- \_\_\_\_\_ 9.5.3.4 Continue lowering steam pressure so that  $T_{ave}$  decreases at 90F/hour. After several minutes, the shell temperature will start to decrease but at a rate less than 90F/hour.



9.0 TEST METHOD (Cont'd.)

NOTE: If a minimum bypass flow of main feedwater has been established to keep the main feedwater nozzles (and flanges) from cycling thermally, the water level in each OTSG may rise above the low level setpoint. This will be acceptable.

\_\_\_\_\_ 9.5.3.5 When tube-to-shell  $\Delta T$  reaches  $140^{\circ}\text{F}$ , decrease the cooldown rate to maintain the tube-to-shell  $\Delta T$  at  $140^{\circ}\text{F}$ .  
When  $\text{RCS } T_{\text{ave}} \leq 350^{\circ}\text{F}$  stop reducing steam generator pressure and begin a gradual repressurization and refilling of each steam generator.

STR-  
1

\_\_\_\_\_ 9.5.4 All necessary OTSG tube leakage monitoring data has been recorded and attached to this procedure.

Section 9.5 Accomplished: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_  
Signature \_\_\_\_\_ Date \_\_\_\_\_

9.6 Third Plant Heatup to  $532^{\circ}\text{F}$ , 2155 psig

\_\_\_\_\_ 9.6.1 Initiate the PPMP computer data collection (Enclosure 7) every ten (10) minutes prior to initiation of the heatup and program to collect data every ten (10) minutes. The time should also be recorded when either RC pumps or Decay Heat pumps are turned on or off. The data should be taken throughout the heatup until hot standby conditions are reached and at the completion of the heatup print out the data collected. Mark up the computer printouts with the following: Step number, TP number, initials, date, page number, and attach as part of Enclosure 7.

TMI UNIT 1  
TP 600/2  
Effective Page STR-1  
Page 17

14. Manning Requirements shall be in compliance with Administrative Procedure 1029.
15. The boron requirements necessary to maintain the required shutdown margin shall be considered to insure that an adequate boron concentration will be maintained prior to placing any Makeup and Purification demineralizer in service.

### 3.0 OPERATING PROCEDURE

#### 3.1 Prerequisites for Cooldown

(Indicate satisfactory completion of steps below by initiating next to each step and sign name at end of applicable section).

- \_\_\_\_ 1. Reactor coolant at 1 percent  $\Delta K/K$  S/D boron concentration at 70°F and with one reactor coolant pump <sup>secured (three</sup> ~~running)~~ <sup>per</sup> ~~per~~ <sup>TP 600/2</sup> ~~loop~~ and necessary safety rods withdrawn. <sup>Sect. 9.3</sup> <sup>only</sup> <sup>STR 1</sup>
- \_\_\_\_ 2. Degassing of reactor coolant system is complete in accordance with plant shutdown as per Operating Procedure 1102-10. If additional degas is needed during cooldown refer to degas Operating Procedure 1102-12.
- \_\_\_\_ 3. Heat dissipation using steam generators is in progress using turbine bypass valves.
- \_\_\_\_ 4. Sufficient boric acid solution and reactor grade water available to makeup for reactor coolant system during cooldown. Required final boron concentration determined