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April 13, 1990  
C311-90-2057

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555

Dear Sir:

Three Mile Island Nuclear Station, Unit 1 (TMI-1)  
Operating License No. DPR-50  
Docket No. 50-289  
Monthly Operating Report  
March 1990

Enclosed are two copies of the March, 1990 Monthly Operating Report for Three Mile Island Nuclear Station, Unit 1.

Sincerely,

H. D. Hukill

Vice President & Director, TMI-1

HDH/WGH:

cc: T. T. Martin, USNRC  
F. Young, USNRC

Attachments

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## OPERATIONS SUMMARY

MARCH 1990

The unit entered the month at hot shutdown following the 8R outage with HSPS modification testing in progress. On March 3, 1990 the reactor was critical. While attempting to obtain a Group 5 control rod out limit, the reactor tripped on high flux (0.5% power set point due to physics testing). Criticality was achieved on March 4th and the generator was brought on line. Radiation monitors began trending up on the condenser offgas on March 6th. Within one hour a plant shutdown was initiated based on indications of OTSG tube leakage. Analysis later determined the tube leak to be >1 gpm. Following the plugging of one identified leaking tube in the "A" OTSG, the plant returned to power operation. As a result of an OTSG high level power limiting condition (approximately 80%), TMI-1 conducted a planned turbine/reactor trip in an attempt to redistribute OTSG fouling deposits. Equipment and crew response were excellent. The unit achieved 90% power and was in a twelve hour hold at that power level by the close of the month. The unit subsequently increased power on April 1, 1990 and input a delta Tc to obtain slightly more power. 100% power was attained to conduct feed water flow nozzle testing and then reduced to 98% to maintain acceptable steady-state OTSG levels.

### MAJOR SAFETY RELATED MAINTENANCE

During March, the following major safety related maintenance activities were performed:

#### 'A' Once Through Steam Generator (RC-H-1A)

The plant was taken off line on March 6th to repair primary-to-secondary leakage in the "A" Once Through Steam Generator (OTSG). Drip and bubble tests were performed to identify all possible leaking tubes. A leaking tube, #77-1, was identified during a bubble test of the upper tube sheet. Eddy current inspection of that tube and approximately 418 others between the bottom of the upper tube sheet and the 14th tube support plate in the "lane wedge" area was performed. A nearly 360° circumferential crack at the interface between the tube and the bottom of the upper tube sheet in tube 77-1 and a 40% through wall ID pit in tube 78-28 were identified. Eddy current examination of tube 77-1 during January, 1990 as part of the 8R ISI program identified no recordable indications. The cause of the failure is believed to be environmentally assisted high cycle fatigue failure. Tube 77-1 was stabilized and both 77-1 and 78-28 were plugged. No additional leakage was evident during post

Additional maintenance performed during the shutdown for OTSG tube repair included:

- 1) Bonnet leak repairs on valves FW-V-0062 and FW-V-1064
- 2) Flange leak repairs on valves HD-V-2A and HD-V-3B
- 3) Air and tubing leak repairs to valves IA-V-1533 and MS-V-28A respectively
- 4) Repacked valve RC-V-31
- 5) Added weight to and balanced the exciter coupling
- 6) Replaced sightglass in level indicator EX-LI-15
- 7) Repaired transmitter RC3A-DPT2
- 8) Repaired oil leaks on Reactor Coolant Pumps 1A-D

#### Waste Transfer Pump WDL-P-7A

Waste transfer pump WDL-P-7A was taken out of service to repair a mechanical seal leak. After disassembly and inspection, the pump was reassembled with new bearings and mechanical seal. The pump was returned to service after completion of post maintenance testing.

#### Maintenance Performed During the Scheduled Plant Trip

During the planned plant trip to redistribute OTSG secondary side mineral deposits, the following maintenance activities were completed:

- 1) Repaired a lube oil leak on FW-P-1A
- 2) Repaired a broken fitting on TG-SV-1 and tightened loose conduit to TG-SV-4
- 3) Repaired the controller for CO-FC-1
- 4) Inspected a CRD breaker
- 5) Replaced a meter in the EHC system failure circuitry



# OPERATING DATA REPORT

DOCKET NO. 50-209  
 DATE 3-30-90  
 COMPLETED BY C.W. Smyth  
 TELEPHONE (717) 948-8551

## OPERATING STATUS

1. UNIT NAME: THREE MILE ISLAND UNIT 1
2. REPORTING PERIOD: MARCH, 1990.
3. LICENSED THERMAL POWER (MWT): 2568.
4. NAMEPLATE RATING (GROSS MWE): 871.
5. DESIGN ELECTRICAL RATING (NET MWE): 819.
6. MAXIMUM DEPENDABLE CAPACITY (GROSS MWE): 856.
7. MAXIMUM DEPENDABLE CAPACITY (NET MWE): 808.

## NOTES

8. IF CHANGES OCCUR IN (ITEMS 3-7) SINCE LAST REPORT, GIVE REASONS:

9. POWER LEVEL TO WHICH RESTRICTED, IF ANY (NET MWE)
10. REASONS FOR RESTRICTIONS, IF ANY:

	THIS MONTH	YR-TO-DATE	CUMMULATIVE
11. HOURS IN REPORTING PERIOD	744.	2160.	136561.
12. NUMBER OF HOURS REACTOR WAS CRITICAL	447.5	565.6	62564.2
13. REACTOR RESERVE SHUTDOWN HOURS	242.8	242.8	2245.6
14. HOURS GENERATOR ON-LINE	406.4	523.6	61519.7
15. UNIT RESERVE SHUTDOWN HOURS	0.0	0.0	0.0
16. GROSS THERMAL ENERGY GENERATED (MWH)	782110.	1017544.	150589439.
17. GROSS ELECTRICAL ENERGY GENERATED (MWH)	267756.	350555.	50657224.
18. NET ELECTRICAL ENERGY GENERATED (MWH)	240655.	306541.	47493030.
19. UNIT SERVICE FACTOR	54.6	24.2	45.0
20. UNIT AVAILABILITY FACTOR	54.6	24.2	45.0
21. UNIT CAPACITY FACTOR (USING MDC NET)	40.0	17.6	44.4
22. UNIT CAPACITY FACTOR (USING DER NET)	39.5	17.3	42.5
23. UNIT FORCED OUTAGE RATE	36.9	31.2	49.6

24. SHUTDOWNS SCHEDULED OVER NEXT 6 MONTHS (TYPE, DATE, AND DURATION OF EACH

25. IF SHUT DOWN AT END OF REPORT PERIOD, ESTIMATED DATE OF STARTUP:

# AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-289  
UNIT TMI-1  
DATE 3-30-90  
COMPLETED BY C.W. Smyth  
TELEPHONE (717) 948-8551

MONTH: MARCH

DAY	AVERAGE DAILY POWER LEVEL (MWE-NET)
1	-39.
2	-40.
3	-42.
4	54.
5	447.
6	231.
7	-14.
8	-7.
9	-7.
10	-6.
11	-6.
12	-7.
13	-18.
14	-31.
15	-43.
16	219.

DAY	AVERAGE DAILY POWER LEVEL (MWE-NET)
17	604.
18	623.
19	656.
20	655.
21	656.
22	655.
23	652.
24	659.
25	658.
26	655.
27	654.
28	657.
29	648.
30	445.
31	462.

# UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH MARCH 1990

DOCKET NO. 50-289  
 UNIT NAME THT-I  
 DATE 03/31/90  
 COMPLETED BY C. W. Smyth  
 TELEPHONE (717) 948-8551

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report #	System Code <sup>4</sup> & 6	Component Code <sup>5</sup> & 6	Cause & Corrective Action to Prevent Recurrence
90-01	03/01/90	S	86.75	C	1	LER 90-05			Unit shutdown for Refueling Outage. Outage commenced 01/05/90. Total number of outage hours as of this report period is 1352.62.
90-02	03/06/90	F	237.3	A	1				OTSG "A" Tube Leak Repair. Bubble Test of "A" OTSG indicated leaking tube at UTS interface was properly repaired.
90-03	03/30/90	S	13.5	B	2				OTSG "B" administratively maintained at 85% in the Operating Range, limiting power to approximately 79%. Plant trip attempted to redistribute fouling present in OTSG's.

<sup>1</sup>  
 F - Forced  
 S - Scheduled

<sup>2</sup>  
 Reason  
 A - Equipment Failure (Explain)  
 B - Maintenance or Test  
 C - Refueling  
 D - Regulatory Restriction  
 E - Operator Training & License Examination  
 F - Administrative  
 G - Operational Error (Explain)  
 H - Other (Explain)

<sup>3</sup>  
 Method  
 1 - Manual  
 2 - Manual Scram  
 3 - Automatic Scram  
 4 - Other (Explain)

<sup>4</sup>  
 Exhibit G - Instructions for Preparation of Data Entry Sheets for Licensee Event Report (LER) File (NUREG-0161)

<sup>5</sup>  
 Exhibit I - Same Source

<sup>6</sup>  
 Actually used exhibits  
 F & H NUREG 0161

REFUELING INFORMATION REQUEST

1. Name of Facility: Three Mile Island Nuclear Station, Unit 1
2. Scheduled date for next refueling shutdown: October 4, 1991 (9R)
3. Scheduled date for restart following current refueling: NA
4. Will refueling or resumption of operation thereafter require a technical specification change or other license amendment?

If answer is yes, in general, what will these be?

If answer is no, has the reload fuel design and core configuration been reviewed by your Plant Safety Review Committee to determine whether any unreviewed safety questions are associated with the core reload (Ref. 10 CFR Section 50.59)? No.

If no such review has taken place, when is it scheduled?  
Completed.

5. Scheduled date(s) for submitting proposed licensing action and supporting information: None planned.
6. Important licensing considerations associated with refueling, e.g. new or different fuel design or supplier, unreviewed design or performance analysis methods, significant changes in fuel design, new operating procedures: None.
7. The number of fuel assemblies (a) in the core, and (b) in the spent fuel storage pool: (a) 177 (b) 441
8. The present licensed spent fuel pool storage capacity and the size of any increase in licensed storage capacity that has been requested or is planned, in number of fuel assemblies:

The present licensed capacity is 752. Planning to increase licensed capacity through fuel pool reracking is in process.

9. The projected date of the last refueling that can be discharged to the spent fuel pool assuming the present licensed capacity:

1991 is the last refueling discharge which allows full core off-load capacity (177 fuel assemblies).