

*W. Lanning*

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

July 30, 1979



MEMORANDUM FOR: William Parler, Group 1, Task Leader

FROM: W. Lanning, Group 1

SUBJECT: SUMMARY OF TMI-2 OPERATING EXPERIENCE

- REFERENCES:
1. Death and Taxes: An Investigation of the Initial Operation of Three Mile Island No. 2, Public Citizen's Health Research Group, April 5, 1979
  2. Inter-Office Memorandum, R. Cutler to R. Arnold, "Startup Test Program History and Delay Analyses," GPU Service, January 23, 1979
  3. Inter-Office Memorandum, R. Cutler to R. Arnold, "TMI-2: Startup Test Program History and Delay Analyses," GPU Service
  4. TMI-2 Monthly Operating Reports February 1978 through March 1979
  5. Memorandum, W. Lanning to W. Parler, "Summary of Licensee Event Reports for TMI-2," May 29, 1979
  6. Letter, J. Herbein to S. Varga, "Power Operation with Three Pumps-" March 29, 1978
  7. Letter, S. Varga to J. Herbein, "TMI-2 Partial Loop Operation," May 3, 1978
  8. Letter, J. Herbein to S. Varga, Response to May 3 letter, May 12, 1978
  9. Memorandum, W. Lanning to W. Parler, "Review of Outstanding Items for TMI-2 License," June 28, 1979
  10. Memorandum, W. Lanning to W. Parler, "Summary of Post-OL Actions," June 22, 1979

From February 1978 to March 1979, TMI-2 experienced at least 34 reactor trips. Approximately one-third of these originated in the Feedwater and Condensate Systems. Reference 1 provides a good chronology of operating experience. However, there are some missing reactor trips which were not contained in the

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July 30, 1979

monthly operating, but appeared on the operating log (source for References 2 and 3). These have been added to the Unit Shutdown Summaries taken from the Monthly Operating Reports (4) and are enclosed. The LER's have been summarized in Reference 5.

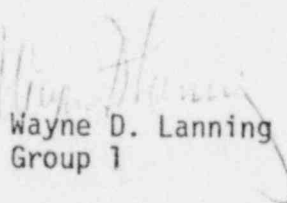
Some importance can be attached to the operating mode of TMI-2 during the period March 14 through May 17, 1978. As the result of the failure of one of the primary reactor coolant pumps, the plant was operated using three coolant pumps. This enabled the plant to achieve criticality (Mode 2) on March 28, 1978, approximately two months sooner than could have been attained using four pumps. The Technical Specifications permit operations with three pumps.

It appears that the staff discussed operation with three pumps with the licensee. This discussion resulted in a letter from the Licensee (reference 6) in which they voluntarily increased the nuclear power peaking factor. This is a change in the Technical Specifications without formal approval by the NRC. Reference 7 requested additional analyses of 3-pump operation for longer term operation. The licensee responded in Reference 8 that the disabled pump had been fixed and that it was not necessary to further define safety margins. It appears that no analyses were completed to justify temporary 3-pump operation.

During this two-month period, a number of preoperational tests were completed. These included control rod group rod drop testing, zero power physics testing, rod worth measurements, power escalation testing. It appears that the reduced flow and possible slight power redistribution would not have any adverse effects on the outcome of these tests. (Ron Hayes will study in detail).

Changes to the operating license and other post-OL actions are summarized in References 9 and 10.

A plot showing the reactor power levels as a function of time is contained in Enclosure 2 (Reference 2).

  
Wayne D. Lanning  
Group 1

Enclosures:

1. Summary of Reactor Trips
2. Operating power history

cc: R. Hayes, w/o encls.  
Group 1, " "

UNIT SHUTDOWNS AND OPERATIONAL REDUCTIONS

REPORT MONTH March

Docket no. 50-300

Unit Name TMI-2

Date April 12, 1978

Completed By J. R. Stair

Telephone 215-929-3601

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report Number	System Code <sup>4</sup>	Component Code <sup>5</sup>	Cause and Corrective Action to Prevent Recurrence
1	3/29/78	F	57.6	A	3	78-21/3L			Loss of power monitor to RCP-1A causing BFG to believe no pumps running in one loop.

<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 & Licensee 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 1 - Same as above  
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ENCLOSURE 1

UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH April, 1978

Docket No. 50-320

Unit Name TMI-2

Date May 11, 1978

Completed By R. A. Lengel

Telephone 215-929-3601

Ext. 148

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report Number	System Code <sup>4</sup>	Component Code <sup>5</sup>	Cause and Corrective Action to Prevent Recurrence
1	4/18/78	F	7.6	H	3				Trip caused by noise spike on a flux/flow/imbalance channel.
	4/23/78	F	174.5	H	3	78-33/1P			Trip caused by noise spike on a power range channel.
	4/01/78	F	182.9	A	3				Loss of power monitor to RCP-1A causing ICS to believe no pumps were operating in one loop.
	4/20/78	F	6.0	A	3				Spike on RT-8 caused a high flow trip
	4/9/78	F	7.9	G	3				Loss of FW due to operator training error section 5.1.1.1 on FW pumps

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<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 & Licensee 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 1 - Same Source

ENCLOSURE 1

UNIT SHUTDOWNS & POWER REDUCTIONS

REPORT MONTH MAY

Docket No. 50-7

Unit Name TMI-

Date June 15, 1978

Completed By R. A. Lengel

Telephone 215-929-3601, Ext. 1

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report Number	System Code <sup>4</sup>	Component Code <sup>5</sup>	Cause and Corrective Action to Prevent Recurrence
1	5/01/78	F	744	II	3	78-33/1P			Repair and testing of main steam safety valve

<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 & Licensee 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 H - (Blank)

ENCLOSURE 1



Unit Name

Date

Completed By R. A. Lopez

Telephone 215-929-4001 Ext

Cause and Corrective Action to Prevent Recurrence

Component Code 5

System Code 4

Reasons

Time

Type

Date

No.

6-1-78

6:20

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Repair and testing of Main Steam safety valve Removal of Orifice rods and placement of retainers on burnable poison rods.

1 F: Forced  
 S: Scheduled

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

3 Method:  
 1-Manual  
 2-Manual Scram.  
 3-Automatic Scram.  
 4-Other (Explain)

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

5 Exhibit 1 - Same Source

UNIT SHUTDOWNS AND RESTARTS REPORT

REPORT MONTH JULY

Docket No. 50-320

Unit Name TMI-2

Date 8-10-78

Completed By R. A. Lengel

Telephone 215-929-3601 Ext. 148

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report Number	System Code <sup>4</sup>	Component Code <sup>5</sup>	Cause and Corrective Action to Prevent Recurrence
1	7-1-78	F	744	H	3	78-33/1P			Repair and Testing of Main Steam Safety Valves

<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 & Licensee 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 1 - Same Source

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UNIT SHUTDOWNS AND POWER REDUCTIONS  
 REPORT MONTH August

Packet No. 50-320

Unit Name TMI-2

Date 9-11-78

Completed By R. A. Ler 1

Telephone 215-920-01 Ext. 148

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report Number	System Code <sup>4</sup>	Component Code <sup>5</sup>	Cause and Corrective Action to Prevent Recurrence
1	8-1-78	F	744	H	3	78-33/1P			Repair and testing of main steam safety valves.

<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 & Licensee 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 1 - Same Source

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UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH SEPTEMBER

Docket No. 50-320

Unit Name TMI-2

Date 11-15-78

Completed By R.A. Lengel

Telephone 215-929-3601 Ext. 150

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report Number	System Code <sup>4</sup>	Component Code <sup>5</sup>	Cause and Corrective Action to Prevent Recurrence
1	9-1-78	F	421.7	H	3	78-33/1P			Repair and Testing of Mainstream Safety Valves
2	9-20-78	F	9.2	A	3				Loss of "A" Main Feedpump
3	9-21-78	F	8	A	3				Control Problems With FWPIA
4	9-22-78	S	92	B	1				Testing of Main Steam Safety Valves
	9-14-78	S	0	B	1				TP: shutdown outside CR. FW valve closed, SG level up to 10". FW valve open when turbine trip

<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 & Licensee 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 - Name of Component

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UNIT SHUTDOWNS AND POWER REDUCTIONS  
REPORT MONTH October

Docket No. 50-320  
Unit Name TMI-2  
Date 12-15-78  
Completed By L. W. Harding  
Telephone 215-921-6576

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report Number	System Code <sup>4</sup>	Component Code <sup>5</sup>	Cause and Corrective Action to Prevent Recurrence
5	10-5-78	S	181	B	2				The outage was extended due to conax connector problems on the steam generator
6	10-13-78	F	4.0	A	NA				The turbine generator was taken off line to repair a hydraulic leak on GVF2
7	10-14-78	F	3.2	A	3				The turbine tripped due to a feedwater pump problem. The reactor then tripped on low pressure due to manually overcompensating for the turbine trip.
8	10-14-78	F	10.5	A	3				Feedwater pump problem
9	10-17-78	S	1.1	B	NA				Main generator differential relay problems
10	10-20-78	F	4.1	A	NA				Main generator differential relay problems
11	10-21-78	F	2.5	A	NA				Main generator differential relay problems
12	10-28-78	F	90.1	A	1				Breakdown of insulation on the #9 excitor bearings

<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 & Licensee 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 1 - Same Source

E-11

UNIT SHUTDOWNS AND POWER REDUCTIONS  
REPORT MONTH November

Docket No. 50-320  
Unit Name TMI-2  
Date 12-15-78  
Completed By L. W. Harding  
Telephone 215-921-6576

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report Number	System Code <sup>4</sup>	Component Code <sup>5</sup>	Cause and Corrective Action to Prevent Recurrence
12	11-1-78	F	14.25	A	1				Breakdown of insulation on the No. 7 Exciter Bearing (Generator off line)
13	11-3-78	F	26.75	G	3				Loss of power to Condensate Polishing Valve (Generator off line)
14	11-7-78	F	570.4	A	3				Condensate Booster Pump tripped thereby tripping the Feedwater Pumps (Generator off line)

<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 & Licensee 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 1 - Same Source

PAGE 1

UNIT SHUTDOWNS AND POWER REDUCTIONS  
 REPORT MONTH December

Docket No. 50-  
 Unit Name TMI-2  
 Date 1/15/79  
 Completed By R. A. Lengel  
 Telephone 921-6581

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report Number	System Code <sup>4</sup>	Component Code <sup>5</sup>	Cause and Corrective Action to Prevent Recurrence
14	12/1/78	F	27.2	A	3				
15	12/2/78	F	1.7	H	3				Condensate booster pump tripped, tripping feed water pumps
16	12/2/78	F	4.8	G	3				Lost FW flow while shifting FWP Turbine 1A from auxiliary steam to main steam
17	12/2/78	F	28.3		3				Turbine tripped when condensate valve was inadvertently positioned to the full open position
18	12/16/78	F	14.6	A	3				OTSG "B" feed stopped due to FW-V-193 being fully closed
19	12/28/78	S	23.8	B	1				Turbine tripped due to loss of FW-P-12
20	12/30/78	F	2.4	B					Physics testing load rejection test High pressure turbine system steam leak

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

<sup>2</sup>Reason:  
 A-Equipment Failure (Explain)  
 B-Maintenance or Test  
 C-Refueling  
 D-Regulatory Restriction  
 E-Operator Training & Licensee Exam  
 F-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

ENC-1

UNIT SHUTDOWNS & POWER REDUCTIONS  
 REPORT MONTH January

Docket No. 5  
 Unit Name Unit  
 Date 2/9/79  
 Completed By R. A. Leonard  
 Telephone 921-6581

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report Number	System Code <sup>4</sup>	Component Code <sup>5</sup>	Cause and Corrective Action to Prevent Recurrence
1	1/2/79	F	11.5	A	N/A				Turbine taken off line to repair hydraulic leak on GV-1
2	1/9/79	F	0						
3	1/14/79	F	412.7	A	1				Decreased power to 60% to try and locate repair condenser leaks  Unit shutdown repair leaking primary valves while startup Reactor tripped on low pressure outage continued to repair atmospheric pump bellows.

<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 & Licensee Examination  
 F-Administrative  
 G-Operational Error (Explain)  
 H-Other (Explain)

<sup>3</sup>Method:  
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 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 1 - Same as above

ENC-1

UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH February

Docket No. 50-320

Unit Name TMI-2

Date 3/9/79

Completed By R. A. Longel

Telephone (215) 921-6581

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report Number	System Code <sup>4</sup>	Component Code <sup>5</sup>	Cause and Corrective Action to Prevent Recurrence
4	2/10/79	S	13.2	A	1				Repair Turbine EMC Leaks

<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 & Licensee Examination  
F-Administrative  
G-Operational Error (Explain)  
H-Other (Explain)

<sup>3</sup>Method:  
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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 1 - Same Source

ENC-1



UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH March, 1979

Docket No. 50-32

Unit Name Three Mile

Date April 18, 1979

Completed By R. A. Lenn

Telephone 215-921-6000

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report Number	System Code <sup>4</sup>	Component Code <sup>5</sup>	Cause and Corrective Action to Prevent Recurrence
5	03/06/79	F	16.5	A	3				Turbine generator tripped followed by Reactor Trip on Core Power Imbalance
6	03/28/79	F	92.0	A	3				Feedpump trip, turbine trip, reactor trip on high pressure. Cause and corrective action to prevent recurrence will be provided at a later date.

<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 & Licensee Examination  
F-Administrative  
G-Operational Error (Explain)  
H-Other (Explain)

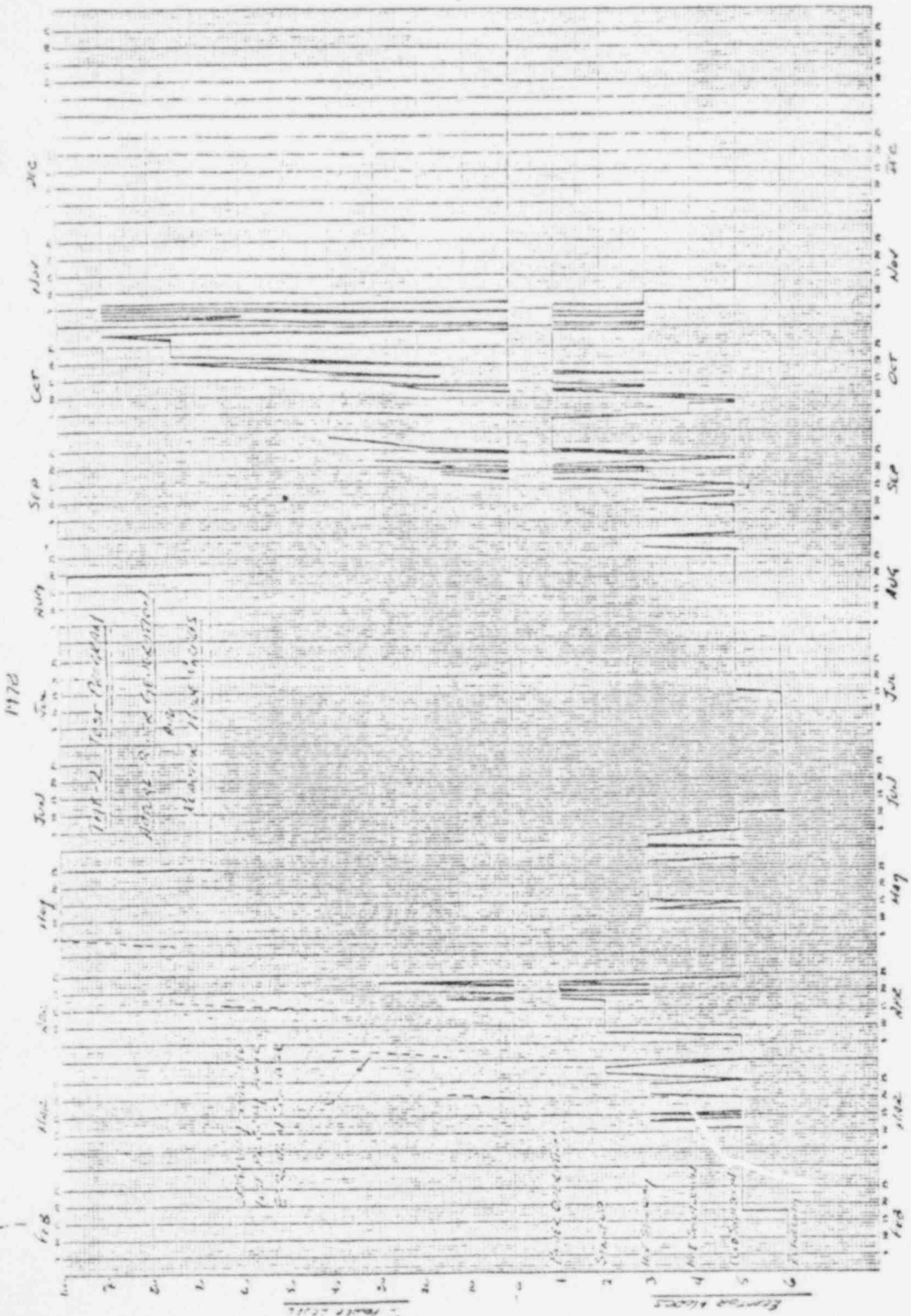
<sup>3</sup>Method:  
1-Manual  
2-Manual Scram.  
3-Automatic Scram.  
4-Other (Explain)

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

<sup>5</sup>Exhibit H - Home Sheet

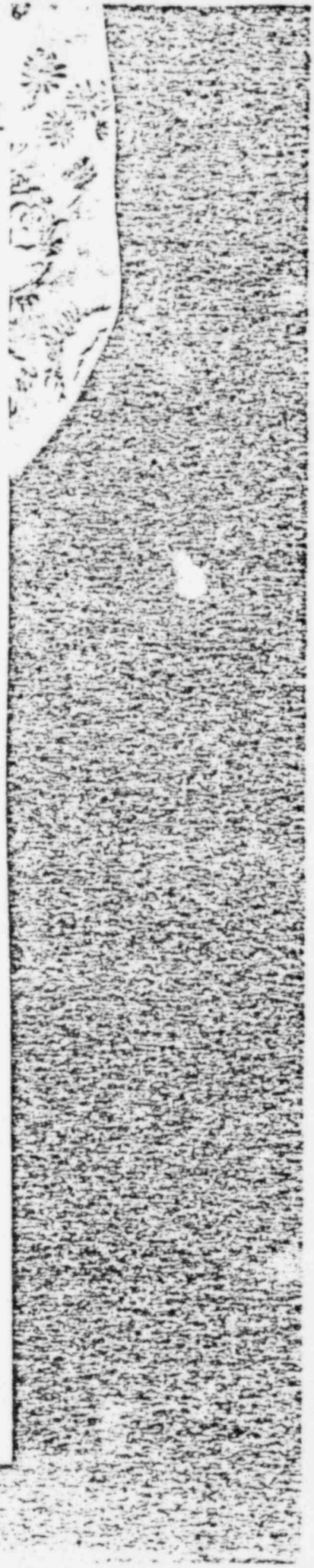
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SUMMARY OF MONTHLY OPERATING EXPERIENCE

TMI Unit 2 returned to service following the screen outage and removal of oil from the condensate system at 0312 on December 2. The unit experienced a loss of feedwater at 0430 and the turbine was manually tripped.

Generator breakers were reclosed at 0609 and at 0720 the reactor tripped on low pressure during a recovery from a loss of feedwater.

The unit returned to service at 15% at 1204. The reactor tripped on low pressure due to overfeeding. The trip was followed by an E.S. actuation and subsequent H.P. injection. The overfeeding occurred when the main feedwater block valves automatically opened with the downstream main feedwater regulating valves manually pinned open at the local air controllers.

The unit returned to service at 1748 on December 3 and power escalation commenced. The unit achieved 90% reactor power at 2154 on December 4 and the 90% power level testing continued.

The unit reduced power to 60% on December 12 in order to remove main feed pump 1B from service in order to repair a leak on the suction strainer.

Power was further reduced to 55% on December 13 due to high sodium levels in the condensate system. It was also discovered that main feed pump 1B had a mechanical interference and could not be rotated freely.

The unit was removed from service at 0151 on December 16 to replace the impeller assembly in 1B main feed pump.

The unit returned to service December 22 and power was increased to 50%.

On December 23 the unit achieved 97% power and testing continued.

On December 27 power was reduced to 65% and returned to 97% for transient testing.

At 1522 on December 28 main feed pump 1A was manually tripped in accordance with the test procedure. The feed pump was returned to service and power increased to 97%. At 2318 the main turbine was manually tripped per the test procedure. The unit responded properly and ran back to 15% power. The unit was subsequently shut down to repair a number of steam leaks.

The unit returned to service December 29 and power was increased to 44%.

At 1100 hrs on December 30 the main turbine was removed from service in order to repair a steam leak on the high pressure turbine. The turbine was returned to service at 1415 hrs and power escalation began.

The unit achieved 80% reactor power at 2020 hrs and commenced commercial operation at 2300 hrs on December 30 at a net 765 MWe.

Power was reduced to 75% at 0030 hrs. on December 31 pending verification of reactor coolant flow calculations. The unit returned to 82% power at 0630 hrs.

At this time plans are to maintain 82% power level until a second heater drain pump can be returned to service.

OPERATING DATA REPORT

Docket No. 50-320

Date 1/15/79

Completed By R. A. Lengel

Telephone 921-6581

OPERATING STATUS

1. Unit Name: Three Mile Island Nuclear Sta., Unit 2
2. Reporting Period: December, 1978
3. Licensed Thermal Power (MWt): 2772
4. Nameplate Rating (Gross MWe): 961
5. Design Electrical Rating (Net MWe): 906
6. Max. Dependable Capacity (Gross MWe): 930
7. Max. Dependable Capacity (Net MWe): 880
8. If Changes Occur in Capacity Ratings (Items No. 3 through 7) Since Last Report, Give Reasons:

9. Power Level to which Restricted. If Any (Net MWe): \_\_\_\_\_
10. Reasons for Restrictions, If Any: \_\_\_\_\_

	MONTH	YR TO DATE	CUMMULATIVE
11. Hours in Reporting Period	<u>744</u>	<u>6692</u>	<u>25</u>
12. No. of Hours Reactor was Critical	<u>541.1</u>	<u>1753.3</u>	<u>25.0</u>
13. Reactor Reserve Shutdown Hours	<u>202.9</u>	<u>3234.4</u>	<u>0.0</u>
14. Hours Generator On-Line	<u>509.3</u>	<u>1298.0</u>	<u>25.0</u>
15. Unit Reserve Shutdown Hours	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
16. Gross Thermal Energy Generated (MWH)	<u>1197696</u>	<u>2219379</u>	<u>56544</u>
17. Gross Elect. Energy Generated (MWH)	<u>383426</u>	<u>727677</u>	<u>19799</u>
18. Net Electrical Energy Generated (MWH)	<u>353051</u>	<u>576921</u>	<u>18716</u>
19. Unit Service Factor	<u>68.5</u>	<u>19.4</u>	<u>100.0</u>
20. Unit Availability Factor	<u>68.5</u>	<u>19.4</u>	<u>100.0</u>
21. Unit Capacity Factor (Using MDC Net)	<u>53.9</u>	<u>9.8</u>	<u>85.1</u>
22. Unit Capacity Factor (Using DER Net)	<u>52.4</u>	<u>9.5</u>	<u>82.6</u>
23. Unit Forced Outage Rate	<u>31.4</u>	<u>76.7</u>	<u>0.0</u>

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:	_____	
26. Units In Test Status (Prior to Commercial Operation):	FORECAST	ACHIEVED
INITIAL CRITICALITY	<u>3/9/78</u>	<u>3/28/78</u>
INITIAL ELECTRICITY	<u>3/15/78</u>	<u>4/21/78</u>
COMMERCIAL OPERATION	<u>12/10/78</u>	<u>12/30/78</u>



AVERAGE DAILY UNIT POWER LEVEL

Docket No. 50-320  
 Unit TMI-2  
 Date 1/15/79  
 Completed By R. A. Lengel  
 Telephone 921-6581

MONTH December, 1978

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)*	DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	<u>-35</u>	17	<u>-36</u>
2	<u>-17</u>	18	<u>-27</u>
3	<u>40</u>	19	<u>-27</u>
4	<u>600</u>	20	<u>-36</u>
5	<u>842</u>	21	<u>-36</u>
6	<u>847</u>	22	<u>257</u>
7	<u>830</u>	23	<u>708</u>
8	<u>838</u>	24	<u>887</u>
9	<u>837</u>	25	<u>896</u>
10	<u>838</u>	26	<u>891</u>
11	<u>837</u>	27	<u>884</u>
12	<u>531</u>	28	<u>843</u>
13	<u>482</u>	29	<u>-32</u>
14	<u>485</u>	30	<u>367</u>
15	<u>485</u>	31	<u>748</u>
16	<u>-15</u>		

\*Please Note: Negative numbers indicate that more energy was used by the unit than was produced by it, and are included for your information only.



## UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH DecemberDocket No. 50-320Unit Name TMI-2Date 1/15/79Completed By R. A. LengelTelephone 921-6581

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report Number	System Code <sup>4</sup>	Component Code <sup>5</sup>	Cause and Corrective Action to Prevent Recurrence
14	12/1/78	F	27.2	A	3				Condensate booster pump tripped, tripping feed water pumps
15	12/2/78	F	1.7	H	3				Lost FW flow while shifting FWP Turbine 1A from auxiliary steam to main steam
16	12/2/78	F	4.8	G	3				Turbine tripped when condensate valve was inadvertently positioned to the full open position
17	12/2/78	F	28.3		3				OTSG "B" feed stopped due to FW-V-19B being fully closed
18	12/16/78	F	146	A	3				Turbine tripped due to loss of FW-P-1B
19	12/28/78	S	23.8	B	1				Physics testing load rejection test
20	12/30/78	F	2.4	B					High pressure turbine system steam leak

<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 & Licensee 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 1 - Same Source