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September 10, 1993
C311-93-2134

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

Gentlemen:

Subject: Three Mile Island Nuclear Station, Unit I (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
Monthly Operating Report for August 1993

Enclosed are two copies of the August 1993 Monthly Operating Report for Three Mile Island Nuclear Station, Unit 1.

Sincerely,

T. G. Broughton
Vice President and Director, TMI-1

WGH

Attachments

cc: Administrator, Region I
TMI Senior Resident Inspector

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OPERATIONS SUMMARY
August 1993

The plant commenced the end of fuel cycle coastdown during the month and the plant power level decreased from 100% to 74% power as it "coasted-down" to refueling. The plant electrical output averaged approximately 716 MWe during the period.

MAJOR SAFETY RELATED MAINTENANCE

During August the following major safety related maintenance was performed:

Reactor Building Cooling Fan AH-E-1A

Reactor Building cooling fan AH-E-1A was removed from service because the motor overload relay tripped while the motor was in 'fast' speed. Inspection revealed that the 'C' phase fast speed winding was open and the terminal stud was burned off. The motor was removed from the fan housing and prepared for shipment to an off-site vendor for repairs. A rebuilt motor, obtained from warehouse stock, was installed in the fan housing and the electrical leads were terminated. After satisfactory test results were obtained, the fan was returned to service.

Make-up Pump MU-P-1B

Make-Up pump MU-P-1B was removed from service to repair an outboard mechanical seal leak. The maintenance performed involved removal of the old seal assembly and installation of a new seal and seal sleeve. During the retest of the pump, the replacement outboard seal continued to leak. It was removed from the pump and inspection revealed minor pitting on the newly installed sleeve. The sleeve was polished and reinstalled in the pump along with new seal faces and o-rings. After reassembly, the seal continued to leak during post maintenance testing of the pump. Further effort to minimize the leakage involved readjustment of the seal faces. Although the outboard seal leakage was not stopped, MU-P-1B was returned to service. The seal leakage is being monitored while repair parts are on order.

Spent Fuel Bridge FH-A-3

Maintenance on the Spent Fuel Pool fuel transfer equipment was accomplished in preparation for use during the upcoming outage. Divers replaced the 'frame down' switch on the west fuel upender, four fuel carriage wheels on the east fuel carriage and three wheels on the west fuel carriage. They adjusted the carriage drive chains, tightened air motor mounting bolts, and tightened jam nuts on the hydraulic cylinders. The divers also inspected the following components: the carriage slow and stop switches, upender pivot and bracket

bushings, and drive chain sprockets. Additionally several above water tasks were completed. They included replacement of a control cabinet 'frame down' no go switch relay and shortening the bridge east trolley travel limit switch LS-21 cam.

Fuel Transfer Tube Isolation Valves FH-V-1A/B

The remote operator rods for fuel transfer tube isolation valves FH-V-1A and B were found damaged/bent during repairs to the spent fuel pool fuel handling equipment. The operator rods were heated and returned to their original configuration.

OPERATING DATA REPORT

DOCKET NO. 50-289
 DATE September 10, 1993
 COMPLETED BY W G HEYSEK
 TELEPHONE (717) 948-8191

OPERATING STATUS

- 1. UNIT NAME: THREE MILE ISLAND UNIT 1
- 2. REPORTING PERIOD: AUGUST 1993
- 3. LICENSED THERMAL POWER: 2568
- 4. NAMEPLATE RATING (GROSS MWe): 871
- 5. DESIGN ELECTRICAL RATING (NET MWe): 819
- 6. MAXIMUM DEPENDABLE CAPACITY (GROSS MWe): 834
- 7. MAXIMUM DEPENDABLE CAPACITY (NET MWe): 786

NOTES:

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

9. POWER LEVEL TO WHICH RESTRICTED, IF ANY (NET MWe): 670 MWe NET (August 1993 average)

10. REASONS FOR RESTRICTIONS, IF ANY: _____
 Fuel Coastdown

		THIS MONTH	YR-TO-DATE	CUMMULATIVE
		-----	-----	-----
11. HOURS IN REPORTING PERIOD	(HRS)	744.0	5831.0	166536.0
12. NUMBER OF HOURS REACTOR WAS CRITICAL	(HRS)	744.0	5765.3	91242.0
13. REACTOR RESERVE SHUTDOWN HOURS	(HRS)	0.0	0.0	2283.8
14. HOURS GENERATOR ON-LINE	(HRS)	744.0	5761.3	90161.4
15. UNIT RESERVE SHUTDOWN HOURS	(HRS)	0.0	0.0	0.0
16. GROSS THERMAL ENERGY GENERATED	(MWH)	1637562	14153789	220200493
17. GROSS ELECTRICAL ENERGY GENERATED	(MWH)	532742	4778577	74123651
18. NET ELECTRICAL ENERGY GENERATED	(MWH)	498145	4502577	69604884
19. UNIT SERVICE FACTOR	(%)	100.0	98.8	54.1
20. UNIT AVAILABILITY FACTOR	(%)	100.0	98.8	54.1
21. UNIT CAPACITY FACTOR	(USING MDC NET)	85.2	98.2	53.2
22. UNIT CAPACITY FACTOR	(USING DER NET)	81.8	94.3	51.0
23. UNIT FORCED OUTAGE RATE	(%)	0.0	1.2	40.3
UNIT FORCED OUTAGE HOURS	(HRS)	0.0	69.7	60759.4
24. SHUTDOWNS SCHEDULED OVER NEXT 6 MONTHS (TYPE, DATE AND DURATION OF EACH):				

===> REFUELING; September 10, 1993; 45 Days <===

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 September 10, 1993
COMPLETED BY W G HEYSEK
TELEPHONE (717) 948-8191

MONTH: AUGUST

DAY AVERAGE DAILY POWER LEVEL
(MWe-NET)

1	778
2	776
3	772
4	763
5	762
6	757
7	743
8	730
9	717
10	709
11	701
12	696
13	686
14	676
15	669
16	661

DAY AVERAGE DAILY POWER LEVEL
(MWe-NET)

17	652
18	642
19	637
20	628
21	623
22	627
23	618
24	600
25	594
26	615
27	587
28	604
29	584
30	576
31	571

UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH August 1993

DOCKET NO. 50-289
 UNIT NAME TMI-1
 DATE September 10, 1993
 COMPLETED BY W. G. Heysek
 TELEPHONE (717) 948-8191

No.	Date	Type ¹	Duration (Hours)	Reason ²	Method of Shutting Down Reactor ³	Licensee Event Report#	System Code ' & '	Component Code ' & '	Cause & Corrective Action to Prevent Recurrence
93-02	8-3-93	S	0	H	4	None	N/A	N/A	The plant began its end-of-cycle fuel coast-down at 0200 on August 3, 1993. Since that time the plant's power level has dropped an average of 1% full power per day.

1
 F Forced
 S Scheduled

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

3
 Method
 1-Manuel
 2-Manuel Scram
 3-Automatic Scram
 4-Other (Explain)

4
 Exhibit G - Instructions for preparation of Data Entry Sheets for Licensee Event Report (LER) File #NREG-0161)

5 Exhibit 1 same source

6 Actually used exhibits F & 11 NUREG 0161

REFUELING INFORMATION REQUEST

1. Name of Facility: Three Mile Island Nuclear Station, Unit 1
2. Scheduled date for next refueling shutdown: September 10, 1993 (10R)
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? YES

In general, these will be:

- a) Use of urania-gadolinia fuel in Cycle 10 and B&W Fuel Company (BWFC) changes in core physics methods will require change to T.S. 6.9.5.2 which lists approved analytical methods references to support the Core Operating Limits Report cycle-specific limit values. Based on recent NRC SER approval of BAW 10179, "Safety Criteria and Methodology for Acceptable Cycle Reload Analyses", which includes the new physics methodology BAW-10180, Rev. 1, NEMO by reference, BAW 10179 will replace the current list of approved methods in T. S. 6.9.5.2. Use of the gadolinium integral burnable poison will also require a change to the Reactor Core fuel description in T. S. 5.3.1.5.
 - b) Based on higher fuel loadings planned for Cycle 10 and beyond, the borated water storage requirements of T.S. 3.3.1.1 need to be increased. BWFC final boron results have confirmed that an increased boron concentration (to about 2500 ppm) is necessary for the BWST as part of the ECCS. (Note: these results have also confirmed the current Core Flood Tank minimum boron concentration requirement of 2270 ppm (T. S. 3.3.1.2)).
5. Scheduled date(s) for submitting proposed licensing action and supporting information:
 - a) For 4a and 4b above, GPUN TSCR 225 for the changes to T. S. 6.9.5.2, 5.3.1.5 and 3.3.1.1 was submitted on June 7, 1993.
 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:
 - a) BWFC and GPUN have completed the fuel cycle design for cycle 10, which is scheduled for startup in October 1993. As stated in 4a above, this design incorporates reload fuel that contains urania-gadolinia. The NRC SERs approving GDTACO (BAW-10184) and NEMO Rev1 support the TMI-1 reload schedule. Based on these methodology approvals and since the reload cycle meets all design and safety criteria as approved in BAW-10179, Cycle 10 is expected to be implemented under 10 CFR 50.59 guidelines.

- b) TMI-1 will use the new Mark B9 fuel assembly in the Cycle 10 reload batch. This design is an upgrade of the Mark B8 assembly used in Cycles 8 and 9. The Mark B9 provides improved fuel thermal limits (LOCA, DNBR, CFM) and repair capabilities. The Mark B9 design meets current BWFC fuel design criteria and has been used previously at other B&W 177 FA plants. Since the Mark B9 was designed to meet the BWFC design criteria approved in BAW 10179, it is expected to be implemented in Cycle 10 under 10 CFR 50.59 guidelines.
- c) GPUN will continue to improve the review process by submittal of Technical Specification Change Requests (TSCR) concerning the reload-related areas of fuel assembly reconstitution and removal of cycle-dependent core limits to the Core Operating Limits Report (COLR).
- 1) GPUN withdrew TSCR No. 200 to modify the TMI-1 Technical Specifications to permit the substitution of Zr-4 or stainless steel replacement rods for failed fuel rods, in accordance with USNRC Generic Letter 90-02, dated February 1, 1990. Generic Letter 90-02, Supplement 1 was issued on July 31, 1992, to clarify limitations on the application of currently-approved analytical methods and withdraw and replace the model TS recommended by Generic Letter 90-02. The B&W Owners Group Topical Report BAW-2149, "Evaluation of Replacement Rods in BWFC Fuel Assemblies", December 1991, was approved in April 1993. This report justifies the use of up to ten replacement stainless steel rods located anywhere in a single fuel assembly based on currently-approved methodology. BAW-2149 provides the basis for reconstitution repairs of BWFC Mark B assemblies to be done under the provisions of 10 CFR 50.59 (i.e., the repair does not represent an unreviewed safety question). TSCR 232 was submitted in August 1993 in response to Generic Letter 90-02, Supplement 1 referencing BAW-2149.
 - 2) B&W Owners Group Topical Report BAW-10179P, "Safety Criteria and Methodology for Acceptable Cycle Reload Analyses", February 1991, was approved in March 1993. This topical provides a basis for changes to cycle-specific limits and to the Mark B fuel design to be under the provisions of 10 CFR 50.59. Per NRC Generic Letter (GL) 88-16, BAW-10179P also provides the basis for removal of additional cycle-specific limits from the T. S. to the COLR. A TSCR will be submitted in October 1993 consistent with GL 88-16 and the BAW-10179P Safety Evaluation (March 16, 1993) for the removal of cycle-specific protective and maximum allowable setpoint limits for axial power imbalance and other applicable cycle-dependent limits.
7. The number of fuel assemblies (a) in the core, and (b) in the spent fuel storage pool: (a) 177 (b) 521

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 1990. Phase I of the reracking project to increase spent fuel pool storage capacity permits storage of 1342 assemblies. Upon completion of Phase II of the reracking project, the full licensed capacity will be attained.

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

Completion of Phase I of the reracking project permits full core off-load (177 fuel assemblies) through the end of Cycle 14 and on completion of the rerack project full core off-load is assured through the end of the current operating license and beyond.