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June 14, 1993
C311-93-2091

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 May 1993

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

Sincerely,

MJ Ross for

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

WGH

Attachments
cc: Administrator, Region I
TMI Senior Resident Inspector

IE24 1/1

OPERATIONS SUMMARY
May 1993

The plant entered and ended the month operating at 100% power producing 860 MWe.

MAJOR SAFETY RELATED MAINTENANCE

During May, the following major safety related maintenance was performed:

Air Handling System Purge Valve AH-V-1B

Air Handling System Purge Valve AH-V-1B was removed from service to replace the Limitorque operator motor and remove the brake assembly. A new Bellville Spring Pack was installed in the operator and preventive maintenance teaks were performed prior to performing post maintenance testing. MOVATS testing was satisfactorily completed and AH-V-1B was returned to service.

Reactor Building Kidney Filter AH-F-12

The Reactor Building Kidney Filter, AH-F-12, filter elements were replaced as a result of reduced efficiency on the elements in operation. AH-F-12 was returned to service upon completion of the work.

OPERATING DATA REPORT

DOCKET NO. 50-289
DATE June 14, 1993
COMPLETED BY W G HEYSEK
TELEPHONE (717) 948-8191

OPERATING STATUS

1. UNIT NAME: THREE MILE ISLAND UNIT 1
2. REPORTING PERIOD: MAY 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): _____
10. REASONS FOR RESTRICTIONS, IF ANY: _____

		THIS MONTH	YR-TO-DATE	CUMMULATIVE
11. HOURS IN REPORTING PERIOD	(HRS)	744.0	3623.0	164328.0
12. NUMBER OF HOURS REACTOR WAS CRITICAL	(HRS)	744.0	3557.3	89034.0
13. REACTOR RESERVE SHUTDOWN HOURS	(HRS)	0.0	0.0	2283.8
14. HOURS GENERATOR ON-LINE	(HRS)	744.0	3553.3	87953.4
15. UNIT RESERVE SHUTDOWN HOURS	(HRS)	0.0	0.0	0.0
16. GROSS THERMAL ENERGY GENERATED	(MWH)	1906278	8759756	214806460
17. GROSS ELECTRICAL ENERGY GENERATED	(MWH)	630692	3026989	72372063
18. NET ELECTRICAL ENERGY GENERATED	(MWH)	595609	2854401	67956708
19. UNIT SERVICE FACTOR	(%)	100.0	98.1	53.5
20. UNIT AVAILABILITY FACTOR	(%)	100.0	98.1	53.5
21. UNIT CAPACITY FACTOR	(USING MDC NET)	101.9	100.2	52.6
22. UNIT CAPACITY FACTOR	(USING DER NET)	97.7	96.2	50.5
23. UNIT FORCED OUTAGE RATE	(%)	0.0	1.9	40.9
UNIT FORCED OUTAGE HOURS	(HRS)	0.0	69.7	60759.4

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 June 14, 1993
COMPLETED BY W G HEYSEK
TELEPHONE (717) 948-8191

MONTH: MAY

DAY	AVERAGE DAILY POWER LEVEL (MWe-NET)	DAY	AVERAGE DAILY POWER LEVEL (MWe-NET)
1	802	17	807
2	801	18	806
3	802	19	805
4	801	20	805
5	798	21	807
6	799	22	806
7	802	23	804
8	803	24	797
9	798	25	792
10	794	26	801
11	790	27	800
12	795	28	793
13	804	29	796
14	807	30	805
15	798	31	799
16	800		

UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH May 1993

DOCKET NO. 50-289
UNIT NAME TMI-1
DATE June 14, 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[4]	Component Code[4]	Cause & Corrective Action to Prevent Recurrence
						None			

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-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

6 Actually used exhibits F & II 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 Corporation (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 changes to the Reactor Core fuel descriptions in T.S. 5.3.1.

   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) Per 4a and 4b above, a GPUN TSCR for the changes to T.S. 6.9.5.2, T.S. 5.3.1 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. Use of urania-gadolinia fuel will need to be supported by approval of BWFC topical reports on reload design methods revisions that account for the Gd effects in the analyses. The NEMO, Rev 1 physics code, noted above, has been approved. Approval of BAW-10184P, GDTACO is also required to support fuel thermal analysis. To ensure that no delays occur to reload

analyses, fuel manufacturing and plant startup schedules, approval of these topicals was requested for April 1, 1993. It is GPUN's understanding that no major NRC concerns have been identified to BWFC to date and that the review is now on schedule for June completion.

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.

c) BWFC has a licensing change under USNRC review for certification of the Siemens fuel assembly shipping container design for shipment of two BWFC Mark B fuel assemblies up to 5.0 wt/o U^{235}. This would allow routine shipment of TMI-1 Cycle 10 fuel with a maximum enrichment of 4.75 wt/o U^{235} since the B&W model B container is restricted to one fuel assembly per container when enrichment exceeds 4.6 wt/o U^{235}. As a further effort to preserve TMI-1 shipments with two fuel assemblies per container, BWFC submitted a criticality analysis in May demonstrating the applicability of the B&W Model B container for two-FA shipments of fuel up to 4.8 wt/o U^{235} for a one-time only special approval. This has been approved by the NRC with a limited duration authorization which expires on September 30, 1993. Cycle 10 fuel shipments will start in June 1993.

d) GPUN will continue to improve the review process by submittal of a Technical Specification change concerning the reload-related areas of fuel assembly reconstitution and removal of cycle-dependent core limits to the Core Operating Limits Report (COLR). A TSCR review completion date consistent with the next TMI-1 refueling outage in September 1993 will be requested.

1) GPUN has withdrawn 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 Anril 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). A new TSCR will be submitted in June 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 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 1 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.