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April 23, 1985

Docket No. 50-320

Mr. F. R. Standerfer
Vice President/Director
Three Mile Island Unit 2
GPU Nuclear Corporation
P.O.Box 480
Middletown, PA 17057

Dear Mr. Standerfer:

Subject: Three Mile Island Unit 2
License No. DPR-73
Docket No. 50-320
Recovery Operations Plan Change Request No. 27

By letter dated February 15, 1985, GPU Nuclear Corporation (GPUNC) requested modifications to the requirements contained in the Proposed Technical Specifications (PTS) and the Recovery Operations Plan (ROP). The staff responded to the PTS request in a separate Amendment of Order which had as an enclosure a safety evaluation (SE) discussing each issue. We have also completed our review of the proposed ROP changes as discussed herein. In addition to the April 23, 1985 Amendment of Order discussions, we have prepared another safety evaluation which is enclosed. Based on these SE's, we concur with your proposed Recovery Operations Plan Changes. Our approval for your ROP Change Request No. 27 is Change Approval No. 27. Affected pages are also enclosed. These changes shall be effective May 31, 1985.

Sincerely,

Original signed by
B. J. Snyder

Bernard J. Snyder, Program Director
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Enclosures:
1. Safety Evaluation
2. Modified Pages

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SAFETY EVALUATION

BY THE OFFICE OF NUCLEAR REACTOR REGULATION

FOR RECOVERY OPERATIONS PLAN CHANGE REQUEST 27

INTRODUCTION

By letter dated February 15, 1985, the licensee requested the approval of modifications to the Proposed Technical Specifications (PTS) and the Recovery Operations Plan (ROP). The staff has concurrently issued a safety evaluation for the PTS changes as an attachment to an Amendment of Order dated April 23, 1985. Discussed herein are ROP changes, some of which have been reviewed in the referenced Amendment of Order, and some that require additional staff comments.

DISCUSSION

The licensee proposed that the minimum boron concentration stated in Specifications 4.1.1.1 B.1 and G.1 for the reactor coolant system be increased from 3500 to 4350. This is consistent with the Appendix A request as discussed in the staff's Amendment of Order. The addition of Specification 4.1.1.3 was requested by GPUNC to support the Appendix A proposal to borate the Fuel Transfer Canal (deep end) and the Spent Fuel Pool Storage Pool "A" to between 4350 and 6000 ppm. The staff, as stated in our response to the Appendix A proposed changes, concurs with these ROP changes also.

Also in support of the requested modifications to Appendix A, as discussed in the separately issued Amendment of Order, the licensee has proposed to add to Table 4.3-7 and Section 4.9, requirements for performing surveillance on the Spent Fuel Storage Pool "A" and Fuel Transfer Canal Water Level

instrumentation. The proposed operating requirements are similar to that presently stated for the Reactor Coolant System level instrumentation and as discussed in our Amendment of Order dated April 23, 1985 are acceptable to the staff.

The licensee also requested the number of operable incore thermocouples stated in Table 4.3-7, Item 4, be reduced from "All Available" to "two." The name of the instruments were also requested to be changed from "Incore Thermocouples" to "Invessel Temperature [Instruments]." In justifying this change, the licensee states that the TMI-2 facility has been shut down for nearly six years and has a decay heat level less than 15 Kw. They cite the fact that incore average temperatures have steadily decreased (when under steady state conditions) to the current level of approximately 90°F. The loss-to-ambient cooling mode has proved successful, adding even more confidence in the stability of the core's temperature. The licensee also states that currently a benefit of invessel temperature monitoring is to ensure that vessel temperatures remain high enough to maintain boron solubility. The staff also notes that thermocouples, even though their configurations have been altered as a result of the accident, provide information on the effectiveness of the loss-to-ambient cooling mode as vessel water level changes are made and provide an indication of reactivity changes because of the correlation between neutron flux, moderator and core temperatures changes. GPUNC states that by reducing the minimum required number of invessel temperature monitors to two, more operational flexibility is allowed even if some thermocouples are damaged as a result of defueling or core inspection activities.

The staff agrees that this flexibility is needed and that the margin of safety as a result of the change will not be significantly affected. We therefore concur with the licensee's proposed change; however, the name of the instruments stated in Table 4.3-7 will remain "Incore Thermocouples" and will not be changed to that suggested by the licensee. This will prevent confusion in the regulatory requirement relative to other temperature sensors that may be inserted into the core. This modification in the licensee's request has been discussed and concurred with by GPUNC.

ENCLOSURE 2

SURVEILLANCE REQUIREMENTS

SECTION		Page
4.8 ELECTRICAL POWER SYSTEMS		
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4.9 LIQUID RADIOACTIVE WASTE STORAGE		
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4.9.12	FUEL HANDLING BUILDING/AUXILIARY BUILDING AIR CLEANUP SYSTEMS	4.9-1

4.1 WATER INJECTION COOLING AND REACTIVITY CONTROL SYSTEMS

4.1.1 BORATION CONTROL

BORATED COOLING WATER INJECTION

4.1.1.1 Two systems capable of injecting borated cooling water into the Reactor Coolant System shall be demonstrated OPERABLE:

A. At least once per 12 hours (when system is in operation) by verifying that the Standby Reactor Coolant System Pressure Control System:

1. Charging Water Storage Tank water volume is filled with a minimum of 2300 gallons.

2. Deleted

3. Deleted

B. At least once per 7 days by verifying that the Charging Water Storage Tank contains borated water with:

1. A boron concentration of between 4350 and 6000 ppm.

2. Deleted.

C. At least once per 31 days by verifying that at least one Standby Pressure Control System Charging Pump develops a minimum flow rate of 30 gpm.

D. By demonstrating that the Mini Decay Heat Removal System (MDHRS) is OPERABLE by performing inservice tests of each MDHRS pump and each MDHRS valve in the flow path in accordance with SECTION XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50, Section 50.55a(g)(6)(i).

E. At least once per 31 days by verifying that on recirculation flow, the decay heat removal pump required by Technical Specification 3.1.1.1 develops a discharge pressure of greater than or equal to 151 psig and that each pump operates for at least 15 minutes.

BORON INJECTION (Continued)

F. At least once per 31 days by verifying that each accessible (per occupational exposure considerations) valve (manual, power operated or automatic) in each flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

G. At least once per 7 days by:

1. Verifying the boron concentration in the BWST is between 4350 and 6000 ppm.

2. Verifying the contained borated water volume of the BWST is at least 100,000 gallons.

H. At least once per 24 hours by verifying the BWST temperature is at least 50°F when the outside air temperature is less than 50°F.

BORON CONCENTRATION

4.1.1.2 The boron concentration of all filled portions of the Reactor Coolant System and the Refueling Canal shall be determined to be within the specified limits by:

a. Determining the boron concentration of the coolant in the filled portions of the Reactor Coolant System to be between 4350 and 6000 ppm by:

1. A mass balance calculation at least once per 24 hours.

2. A chemical analysis at least once per 7 days.

b. Verifying the temperature of the coolant in the filled portions of the Reactor Coolant System to be greater than 50°F at least once per 12 hours.

c. Deleted

4.1.1.3 The boron concentration of the water filled portions of the Fuel Transfer Canal (deep end) and Spent Fuel Storage Pool "A" shall be determined to be within the specified limits by:

a. Determining the boron concentration of the water in the filled portions of the water in the Fuel Transfer Canal (deep end) and the water in Spent Fuel Storage Pool "A" to be between 4350 and 6000 ppm by a chemical analysis at least once per 7 days.

4.1.3 CONTROL ASSEMBLIES

4.1.3.1 With the Reactor Vessel Head and the Control Rod Drive Mechanisms removed or disconnected from the reactor vessel there is no surveillance required.

TABLE 4.3-7

ESSENTIAL PARAMETERS MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION[1]	READOUT LOCATION(S)	MINIMUM OPERABLE CHANNELS
1. Reactor Building Pressure	S	R	Control Room	2
2. Reactor Vessel Water Level	S/W[2]	SA	Control Room [2]	2[2]
3. Reactor Coolant System Temperature	S	R	CAB 217 & Control Room	1/Loop
4. Incore Thermocouples	S	R	Control Room or Cable Room	2
5. NI Intermediate Range Level Log N	M	R	Cab 217 & Control Room	1
6. NI Source Range Level	M	R	Cab 217[4] & Control Room	2
7. Reactor Building Water Level	NA	SA	Control Bldg. Area West	1
8. Borated Water Storage Tank Level	S	R	Control Room	1
9. Steam Generator Level	NA	NA	NA	1/Generator
10. Decay Heat Removal Flow	M	R	Cab 217	1/Loop
11. Spent Fuel Storage Pool "A" Water Level	S/W[2]	SA	Control Room [2]	2[2]
12. Fuel Transfer Canal (deep end) Water Level	S/W[2]	SA	Control Room [2]	2[2]

(See following page for notes)

TABLE 4.3-7 (Cont'd)

ESSENTIAL PARAMETERS MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Notes:

1) Nuclear detectors and all channel components located inside containment may be excluded from CHANNEL CALIBRATION.

2) One channel may consist of a visual indication such as a level stand pipe. Seven day surveillance applies to visual indication only. Visual indication readout may be in the Reactor Building, Fuel Handling Building, or by remote television.

3) Deleted

4) Only one readout required at Cab 217.

4.9 LIQUID RADWASTE STORAGE

SPENT FUEL STORAGE POOL "A" WATER LEVEL MONITORING

4.9.1 The Spent Fuel Storage Pool "A" water level monitoring instrumentation shall be demonstrated OPERABLE as required by Table 4.3-7.

4.9.2 Verify that surveillance of Spent Fuel Storage Pool "A" water level is being performed in accordance with NRC approved procedures.

FUEL TRANSFER CANAL WATER LEVEL MONITORING

4.9.3 The Fuel Transfer Canal (deep end) water level monitoring instrumentation shall be demonstrated OPERABLE as required by Table 4.3-7.

4.9.4 Verify that surveillance of the Fuel Transfer Canal (deep end) water level is being performed in accordance with NRC approved procedures.

FUEL HANDLING BUILDING/AUXILIARY BUILDING AIR CLEANUP SYSTEMS

4.9.12.1 The Fuel Handling Building Air Cleanup Exhaust System shall be demonstrated OPERABLE:

A. At least once per 31 days by verifying that the Air Cleanup Exhaust System in the normal operating mode meets the following conditions:

** 1. Exhaust Flow Rate: With two filter trains and two exhaust fans in operation in the Fuel Handling Building flow rate shall be within the 36,000 cfm to 54,000 cfm operating band.

2. Filter Pressure Drop: While operating within the flow rate specified in 4.9.12.1.A.1 above, the d/p across the combined HEPA filters and charcoal adsorbers shall not exceed 6 inches water gauge.

3. Fuel Handling Building Pressure: Demonstrate that the system is capable of achieving a negative pressure within the building equal to or greater (more negative) than 1/8 inch water gauge with respect to atmospheric. It may be necessary to close doors and other building openings to achieve the required value.

** With the fuel transfer tubes open and the Fuel Pool not flooded in accordance with NRC approved procedures, the FHB exhaust flowrate shall be maintained between 26,000 cfm and 54,000 cfm. This condition applies only during system operation (not during system surveillance testing) performed to the criteria of Tech Spec 4.9.12.1.A.

B. At least once per 18 months by verifying that the ventilation system meets the following conditions:

1. Visually inspect each filter train and associated components in accordance with Section 5 of ANSI N510-1980, as required by Regulatory Position C.5.a of Regulatory Guide 1.52, Revision 2, March 1978. The inspection should be performed prior to the flow and DOP tests of this section.

2. Flow Test: Exhaust flow rate shall be within 18,000 cfm to 27,000 cfm operating band for each filter train with one filter train and one exhaust fan operating. Testing shall be in accordance with ANSI N510-1980, Section 8.3.1, Paragraphs 3 and 4.

3. DOP Test: Each filter train shall be tested in accordance with Section 10 of ANSI N510-1980, as required by Regulatory Position C.5.c of Regulatory Guide 1.52, Revision 2, March 1978. Flow through the filter train being tested shall be as prescribed for the flow test in Section 4.9.12.1.b.2 above.

NOTE: Installed system flow instrumentation is adequate for the test described in 4.9.12.1.b.3 above.