



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 68 TO FACILITY OPERATING LICENSE NO. DPR-50

METROPOLITAN EDISON COMPANY
JERSEY CENTRAL POWER AND LIGHT COMPANY
PENNSYLVANIA ELECTRIC COMPANY

THREE MILE ISLAND NUCLEAR STATION, UNIT NO. 1

DOCKET NO. 50-289

Introduction

By letters dated April 24, 1981 (L1L 079, TSCR No. 101) and June 15, 1981 (L1L 162), Metropolitan Edison Company (Met Ed) requested an amendment to Appendix A of the Operating License No. DPR-50 for the Three Mile Island Nuclear Power Station, Unit No. 1 (TMI-1). The amendment would extend the Cycle 5 refueling interval to the Cycle 5 criticality date when considering the linkage of the refueling interval to some of the surveillance requirements. Appendix A of the operating license limits the refueling intervals to 24 months in which this limit was reached on February 1981 for the present refueling interval.

Discussion and Evaluation

By letters dated April 24, 1981 (L1L 079) and June 15, 1981 (L1L 162), the licensee requested to modify the surveillance requirements to allow the refueling interval to be extended to the restart of TMI-1. Specifically, Appendix A of the license requires that certain safety related equipment be tested for operability during each refueling interval not to be extended beyond a 24 month period. For this refueling interval, the period ended on February 1981. The proposed change will extend the surveillance period of certain safety related equipment from February 1981 to the criticality date of Cycle 5.

The affected safety related equipment is as follows:

1. Reactor Building Purge Air Treatment System (Specification 4.12.2.2).
2. Emergency Control Room Air Treatment System (Specification 4.12.2.1).
3. Operability of Main Steam Safety Valves (Specification 3.4.6 and Table 4.1-2 Item 4).
4. Control Rod Drive System Function Test (Specification 4.7.1).
5. High and Low Pressure Injection Systems (Specifications 4.5.1 and 4.5.2.2).
6. Core Flooding (Specification 4.5.2.3).
7. Reactor Building Cooling and Isolation Systems (Specification 4.5.3.1.b).
8. Emergency Power System (Specifications 4.5.1.1 and 4.6.1.b).
9. Turbine Overspeed Trip (Specification Table 4.1-4 Item 39).

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All of safety related equipment listed above except for the Reactor Building Cooling and Isolation Systems (Item 7) and the Turbine Overspeed Trip (Item 9) would have their surveillance conducted prior to Cycle 5 criticality. The Turbine Overspeed Trip (Item 9 above) would be tested prior to the reactor exceeding 20% of full power. This test which checks the trip function while the turbine is rotating, cannot be performed prior to reactor criticality. This is due to the prolonged shutdown period in which the decay heat combined with pump heat is not adequate to roll the turbine at a proper speed to check the trip function. The trip function is to protect the turbine from excessive rotational velocities that could damage safety related equipment from a missile hazard. During the interval in which the surveillance is delayed, operability of turbine trip function is not required because the turbine cannot possibly be put in an overspeed condition due to plant conditions. On this basis, we find this proposed change to delay the surveillance period of testing the turbine overspeed trip function (Item 9) to when the reactor approaches 20% of full power is acceptable.

The reactor building cooling and isolation systems (Item 7 above) are designed to remove the heat in the containment atmosphere to prevent the building pressure from exceeding the design pressure. Appendix A of the license requires the system to be tested during each refueling period to demonstrate proper operation. The licensee proposed to test the system prior to Cycle 5 criticality. However, the reactor system is permitted to operate at high temperature and pressure using pump heat prior to criticality at which time the reactor building cooling system is required to be operable to protect against a postulated high energy pipe break. On this basis, we requested the licensee to modify the proposed Technical Specifications so that the surveillance of this system is performed prior to plant heatup instead of prior to criticality. This modification is reflected in the revised page 4-44 of the proposed modified Technical Specifications transmitted by the licensee's letter dated June 15, 1981. Based on the above evaluation, delaying the surveillance of the Reactor Building Cooling and Isolation Systems (Item 7) to prior to plant heatup is acceptable.

The existing Technical Specification requires the Reactor Building Purge Air Treatment System (Item 1) and the Emergency Control Room Air Treatment System (Item 2) to be operable when containment integrity is required. The proposed change would defer the surveillance of the carbon tests and analysis of the carbon filters for both systems until prior to Cycle 5 criticality. By letter dated June 1, 1981, we issued Amendment No. 67 waiving the operability requirements of these filters for the same period and the proposed modification waives surveillance of these operability requirements. The basis for waiving the operability would also apply to deferring the surveillance of the carbon filters. Thus since these carbon filters are not needed because I₁₃₁ is not present nor will it be produced during this period, the surveillance requirements are not necessary. On this basis, we find the licensee's proposed modification to defer the surveillance of the carbon filters until prior to Cycle 5 criticality is acceptable.

Technical Specification 3.4.6 requires that the reactor coolant system shall not be heated above 250°F with irradiated fuel in the core unless the main steam safety valves are operable (item 3). Table 4.1-2 of the Technical Specification requires that the main steam safety valves be tested during each refueling period in order to demonstrate operability. The licensee has requested an exemption from specification 3.4.6 to allow heatup to at least 532°F for testing the main steam safety valves. In our review of this request we have judged that an exemption is not required since the licensee has tested the main steam safety valves during this refueling period and thus the requirement of the Technical Specification has been met. However, two of the eighteen valves are required to be operable during hot functional testing, and any insitu testing can only be performed when the plant is at operating temperatures such as during the hot functional testing period. We agree with the licensee that it is reasonable to assume that main steam safety valves are operable because since these valves were last tested they have not been challenged nor have they been exposed to harsh environmental conditions that would promote corrosion. In addition, these valves have not been subjected to maintenance that would change the setpoint since they were last tested. On this basis, it is reasonable to assume that at least two of the 18 valves which are required to be operable will perform their intended safety function if called upon during the hot functional testing period. On this basis we find that an adequate number of the main steam safety valves are operable and therefore, the plant can operate safely during the hot functional testing period which is part of the restart program. In addition, the licensee intends to test an adequate number of main steam safety valves prior to Cycle 5 criticality which is reflected in the proposed change. Based on the above evaluation, the proposed change to Technical Specification (Table 4.1-2) is acceptable.

The licensee proposed to delete the requirement to sequentially perform the emergency loading sequence test prior to testing the equipment in high pressure injection system (Technical Specification 4.5.2.1 item 5 above). The licensee interprets this specification to mean that he is required to perform a successful emergency loading test before testing the equipment in the high pressure injection system. This requirement reduces the scheduling flexibility and the emergency power loading sequence has no effect on the test results of the equipment of the emergency cooling system. We agree with the licensee that the order in which these tests are run does not demonstrate operability. In addition, this proposed modification does not relieve the licensee from demonstrating operability by testing the emergency cooling system and testing the emergency loading sequence. Since demonstration of operability is required regardless of the order of testing, the level of safety is not reduced. On this basis, we find the proposed change to delete the requirement to perform the emergency loading sequence test prior to the system tests is acceptable.

Systems designated in items 4, 5, 6 and 8 above are required to be operable for power operation but need not be operable for hot functional testing or cold shutdown conditions. However, the surveillance of these systems is required as a prerequisite to reactor startup and the licensee's proposed changes reflect this requirement. Since these systems need not be operable during the periods of cold shutdown and hot functional testing and the reactor is to remain subcritical by Commission Orders, we find the licensee's proposed change to extend the surveillance interval to the Cycle 5 criticality date is acceptable.

Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: July 20, 1981