10-29-75

METROPOLITAN EDISON COMPANY
JERSEY CENTRAL POWER & LIGHT COMPANY

AND

PENNSYLVANIA ELECTRIC COMPANY

THREE MILE ISLAND NUCLEAR STATION UNIT 1

Operating License No. DPR-50
Docket No. 50-289
Technical Specification Change Request No. 23

This Technical Specification Change Request is submitted in support of Licensee's request to change Appendix B to Operating License No. DPR-50 for Three Mile Island Nuclear Station Unit 1. As a part of this request, proposed replacement pages for Appendix B are also included.

METROPOLITAN EDISON COMPANY

By R C Arnold
Vice President-Generation

Sworn and subscribed to me this 29th day of October, 1975

Richard I. Ruth
Notary Public
RICHARD I. RUTH
Notary Public, Muhlenberg Twp., Berks Co.
My Commission Expires September 23, 1978

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METROPOLITAN EDISON COMPANY SUBSIDIARY OF GENERAL PUBLIC UTILITIES CORPORATION

POST OFFICE BOX 542 READING, PENNSYLVANIA 19603 TELEPHONE 215 – 929-3601

October 29, 1975
GQL 1648

Director of Nuclear Reactor Regulations
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Sir:

Three Mile Island Nuclear Station Unit 1
Docket No. 50-289
License No. DPR-50
Technical Specification Change Request No. 23

Attached are three signed originals and thirty-seven conformed copies of Technical Specification Change Request No. 23, requesting amendment to Appendix B of Operating License No. DPR-50. As a part of this request, proposed replacement pages for Appendix B are also attached.

Also attached is one signed copy of a Certificate of Service of Technical Specification Change Request No. 23 to the chief executives of the township and county in which the facility is located.

Sincerely,

/s/ R. C. Arnold

R. C. Arnold
Vice President

RCA:CWS:cas
File: 7.7.4.3.6.1/20.1.1

1492 068

METROPOLITAN EDISON COMPANY
JERSEY CENTRAL POWER & LIGHT COMPANY

AND

PENNSYLVANIA ELECTRIC COMPANY

THREE MILE ISLAND NUCLEAR STATION UNIT 1

Operating License No. DPR-50
Docket No. 50-289
Technical Specification Change Request No. 23

This Technical Specification Change Request is submitted in support of Licensee's request to change Appendix B to Operating License No. DPR-50 for Three Mile Island Nuclear Station Unit 1. As a part of this request, proposed replacement pages for Appendix B are also included.

METROPOLITAN EDISON COMPANY

By /s/ R. C. Arnold
Vice President-Generation

Sworn and subscribed to me this 29th day of October, 1975

/s/ Richard I. Ruth
Notary Public

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF

DOCKET NO. 50-289
OPERATING LICENSE NO. DPR-50

METROPOLITAN EDISON COMPANY

This is to certify that a copy of Technical Specification Change Request No. 23 to Appendix B of the Operating License for Three Mile Island Nuclear Station, Unit 1, dated October 29, 1975, and filed with the U.S. Nuclear Regulatory Commission October 29, 1975, has this 29th day October, 1975, been served on the chief executives of Londonderry Township, Dauphin County, Pennsylvania, and of Dauphin County, Pennsylvania, by deposit in the United States Mail, addressed as follows:

Mr. Weldon B. Arehart, Chairman
Board of Supervisors of
Londonderry Township
R.D. #1, Geyers Church Road
Middletown, Pennsylvania 17057

Mr. Charles P. Hoy, Chairman
Board of County Commissioners of
Dauphin County
Dauphin County Courthouse
Harrisburg, Pennsylvania 17120

METROPOLITAN EDISON COMPANY

By /s/ R. C. Arnold
Vice President-Generation

1492 070

Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289

Technical Specification Change Request No. 23

The Licensee requests that the following changes be made to Appendix B of the Technical Specifications. A copy of proposed changed pages are attached.

1. Page 4, left column, second paragraph, second sentence; delete "...when air ambient is above 34°F dry bulb..."

2. Page 4, left column, third paragraph; delete entire first sentence and replace with, "As an operator aid, the MDCT can be operated in the automatic mode which shifts fans to half speed, reduces the number of fans operating and shifts fan operation from cell to cell. The automatic mode is used to help prevent icing of the MDCT while maintaining discharge temperature as close as possible to river water inlet temperature. The automatic control system, however, does not assure compliance with environmental Technical Specifications. The operator will take manual control when necessary to prevent icing or to improve cooling tower operation with regard to discharge temperature."

3. Page 5, left column, third paragraph; delete entire third sentence and delete, "...(normal operation for dry bulb air temperature below 34°F)..." from the fourth sentence.

4. Page 6, left column, first paragraph; change to read, "...the operator may shift to automatic control..."

5. Page 35, second paragraph of Section 3.1, second sentence, delete, "...when air ambient is above 34°F.D.B..."

6. Page 35, third paragraph of Section 3.1; delete entire first sentence and replace with, "As an operator aid, the MDCT can be operated in the automatic mode which shifts fans to half speed, reduces the number of fans operating and shifts fans operation from cell to cell. The automatic mode is used to help prevent icing of the MDCT while maintaining discharge temperature as close as possible to river water inlet temperature. The automatic control system, however, does not assure compliance with environmental Technical Specifications. The operator will take manual control when necessary to prevent icing or to improve cooling tower operation with regard to discharge temperature."

7. Page 36, second paragraph; delete entire second sentence and delete "...(below 34°F.D.B. air temperature)..." from the third sentence. Change the last sentence to read, "Near the end of cooldown the tower may be shifted back to automatic..."

Reason for Proposed Change

The automatic mode of the MDCT was originally designed to be an operator aid to help prevent icing of the MDCT while maintaining discharge temperature as close as possible to river water inlet temperature. This fact should be stated in the Environmental Technical Specifications. The proposed change more clearly defines the purpose of the automatic mode of the MDCT.

Environmental Analysis Justifying Change

The proposed change clarifies the purpose of the automatic mode of operation of the MDCT. Since the proposed change does not affect the environmental limits that still must be met, the change does not involve an unreviewed environmental impact nor an unreviewed safety question.

Cost-Benefit Analysis Supporting Change

There is no significant cost involved in this change as it only clarifies the purpose of the automatic mode of operation of the MDCT.

2.0 LIMITING CONDITIONS FOR OPERATION

Bases

Natural draft cooling towers are utilized to cool the large heat load of the condenser. The mechanical draft cooling tower cools a mixture of service water and the natural draft cooling tower blowdown. The effluent from the mechanical draft cooling tower discharges to the river.

For normal operation, one pump and up to three fans will be operated to affect maximum cooling without intentionally discharging below river ambient. The tower will be operated manually by the operator from the control room to affect maximum cooling without intentionally discharging below river ambient. The tower was designed to limit discharges to 87°F on the hottest day.

As an operator aid, the MDCT can be operated in the automatic mode which shifts fans to half speed, reduces the number of fans operating and shifts fan operation from cell to cell. The automatic mode is used to help prevent icing of the MDCT while maintaining discharge temperature as close as possible to river water inlet temperature. The automatic control system, however, does not assure compliance with environmental Technical Specifications. The operator will take manual control when necessary to prevent icing or to improve cooling tower operation with regard to discharge temperature. It is expected that during sustained cold periods, the discharge will average 3°F above river ambient.

Bases

Instrumentation is required for two different purposes and is located in two places. One group of instruments is located in the control room to provide operator control intelligence. The second group of instruments is located in the mechanical draft cooling tower pumphouse and serves in connection with the automation of the towers but also serves to provide additional time-history recorded data and backup information for operator control intelligence in event control room instrumentation is out of service.

In the control room the following enables the operator to monitor and control discharge temperatures:

a. Delta temperature recorder -- discharge temperature minus river water inlet temperature.

b. River water inlet temperature on computer.

c. Heated water temperature to tower indicated.

d. Discharge temperature of tower is recorded and indicated.

In the cooling tower pumphouse, the following instrumentation is available on multipoint and continuous pen dragging recorders:

a. River water inlet temperature.

b. Heated water temperature to tower.

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Bases (Cont'd)

However, since the tower performance is a function of air wet bulb temperature and since the wet bulb can increase many degrees in hours while the river temperature tracks much more slowly, the tower's performance can become ineffective. The worst example of this mismatch is a sudden warm day in winter with a frozen river. At such times the tower will be shut down, since continued operation would result in higher temperatures.

As an example of how TMI might perform with these restrictions with the tower shut down due to air/river temperature mismatch, the mixed river temperature, assuming a $33^{\circ}F$ river and a winter river flow of 10,000 cfs would be $0.1^{\circ}F$ above river ambient based on normal plant operation.

For cooldown operation, two pumps will be operated to pump over the mechanical draft cooling tower fill. The tower is designed to cool the effluent flow on the hottest day to $87^{\circ}F$. If the tower should be in the automatic mode of operation, the operator will shift to manual operation to achieve maximum cooling at the beginnning of cooldown. Note that an increased heat load is present at the beginning of cooldown which reduces the probability of freezing.

Near the end of the cooldown, the operator may shift to automatic control to preclude freeze-up.

If cooldown should occur at a time of air/

Bases (Cont'd)

c. Discharge temperature of tower.

d. Air dry bulb temperature.

e. Cooling tower basin water temperature near louvers.

2.0 LIMITING CONDITIONS FOR OPERATION

Bases (Cont'd)

river temperature mismatch (as described under normal operation earlier) and should the tower operation add heat, the tower will be bypassed.

If the unit were to be cooled down with the mechanical draft cooling tower not operating, the mixed river temperature at beginning of cooldown would be $<+ 3^{o}F$ above river ambient based on a $33^{o}F$ river with 10,000 cfs flow.

The above operating practices and the effluent temperature limits in this specification will insure compliance with the objectives.

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3.0 DESIGN FEATURES AND OPERATING PRACTICES

Objective

This section contains a description of design features and operating practices which, if changed, might have a significant environmental impact.

Specification

If operating practices or design features are planned which deviate from those described in the bases below, an analysis of their potential environmental impact will be made and a course of action taken to alleviate potential adverse impacts. In addition, if the ecology of the river significantly changes at a future date as, for example, by major changes in water chemistry or reintroduction of shad, an analysis of expected impacts and a course of action to minimize the impacts will be provided.

Bases

3.1 Operation of Mechanical Draft Cooling Tower

Natural draft cooling towers are utilized to cool the large heat load of the condenser. The mechanical draft cooling tower cools a mixture of service cooling water and a small amount of natural draft cooling tower blowdown, which represents a much reduced heat load. The effluent from the mechanical draft cooling tower discharges to the river.

For normal operation, one pump will be operated with up to three fans to affect maximum cooling without intentionally discharging below river ambient. The tower will be operated manually by the operator from the control room to affect maximum cooling without intentionally discharging below river ambient.

As an operator aid, the MDCT can be operated in the automatic mode which shifts fans to half speed, reduces the number of fans operating and shifts fans operation from cell to cell. The automatic mode is used to help prevent icing of the MDCT while maintaining discharge temperature as close as possible to river water inlet temperature. The automatic control system, however, does not assure compliance with environmental Technical Specifications. The operator will take manual control when necessary to prevent icing or to improve cooling tower operation with regard to discharge temperature. During sustained cold periods, the discharge will average 3°F above river ambient. However, since the tower performance is a function of air wet bulb temperature which can increase much more rapidly than the river temperature, the tower's performance can become ineffective. An example would be a sudden warm day while the river is still frozen. At such time the tower is shut down since its operation would result in increasing the discharge temperature. During such periods, the discharge temperature is approximately 10°F above river ambient.

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For cooldown operation two pumps are operated to pump over the mechanical draft cooling tower fill. If the tower is in the automatic mode of operation, it is shifted to manual operation to achieve maximum cooling at the beginning of cooldown. With average winter weather conditions, the tower discharge is approximately 12°F above river ambient at the beginning of cooldown and reduces to approximately 3°F some 12 hours later. Near the end of cooldown the tower may be shifted back to automatic control to preclude freeze-up.

3.2 Chemical Usage

This section describes the chemicals used in the plant which are discharged to the environment. The equipment in which the chemicals are used along the quantities per batch or rate of continuous discharge and expected discharge frequency are included.

3.2.1 Water Treatment

The clarifier continually receives approximately 0.05 lb. of cationic polyelectrolyte and 0.6 lb. of anionic clay per 1000 gallons of water treated to remove suspended solids from the river water. Assuming an average flow of 100 gpm. through the clarifier, sludge containing approximately 60 lb. of clay and 5 lb. of polyelectrolyte plus a highly variable amount of suspended solids removed from the river water is blown down from the clarifier each day. The sludge is processed in diatomaceous earth pressure filters and the filtrate is released to the plant river water discharge. The solids component is pressed into dewatered blocks. Their disposal is described under solid waters.

A cation - anion string in the cycle makeup demineralizer system uses 2260 lb. of sulfuric acid and 1340 lb. of sodium hydrode for each regeneration. An additional 2350 lb. of sodium hydroxide is required to neutralize the spent regenerants prior to discharge, resulting in 3270 lb. of neutralized sodium sulfate contained in approximately 70,000 gallons of water. Based upon a demineralized water use of 40,000 gallons per day and a production of 300,000 gallons between regenerations, this quantity would be released each 7.5 days. Release rates are based upon flow through the mechanical draft cooling tower.

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