FROM:
Metropolitan Edison Company
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J.G. Miller

DATE OF DOCUMENT: Mar. 6, 1972
DATE RECEIVED: Mar. 8, 1972
NO.:

LTR. X | MEMO: | REPORT: | OTHER:

TO:
Mr. R.C. DeYoung

ORIG.: 1 | CC: | OTHER:

ACTION NECESSARY ☐ | CONCURRENCE ☐ | DATE ANSWERED:
NO ACTION NECESSARY ☐ | COMMENT ☐ | BY:

CLASSIF.: U | POST OFFICE REG. NO:

FILE CODE: 50-289

DESCRIPTION: (Must Be Unclassified)
Ltr trans the following:

ENCLOSURES:
Response to questions on Amdt No. 18 to Unit I FSAR.....

(1 Orig & 20 conf'd cys of encl rec'd)

REFERRED TO	DATE	RECEIVED BY	DATE
Denton w/2 cys for ACTION	3-8-72		
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REMARKS:

U. S. ATOMIC ENERGY COMMISSION MAIL CONTROL FORM FORM AEC-326 (8-60)

☆ U. S. Government Printing Office: 1968 – 296 – 614

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March 6, 1972

Mr. R. C. DeYoung, Assistant Director
for Pressurized Water Reactors
Division of Reactor Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

Dear Mr. DeYoung:

Subject: Three Mile Island Nuclear Station Unit #1
Docket No. 50-289

Enclosed please find twenty (20) copies of our response to the questions on Amendment #18 to the Unit #1 FSAR, raised by the U. S. Department of the Interior, Fish and Wildlife Service. These questions were forwarded to us as an attachment to your letter dated January 24, 1972.

Very truly yours,

J. G. Miller
Vice President

JGM/DHR/ah
Enclosures

cc, w/o enclosure:
Mr. Thomas M. Gerusky
Mr. C. Robert Budd
Mr. Richard Menear

Mr. Daniel W. Slater, Chief
Division of River Basin Studies
Bureau of Sport Fisheries and Wildlife
U. S. Department of the Interior
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Regulatory File Cy.

Question 1

Section 1.3.2.19 on page 1-10, states that the minimum average effluent flow rate from the mechanical draft cooling tower will be increased from 2,000 to 5,000 gpm. Does this increased flow rate correspond to a similar increase in cooling water intake volume and what will the effluent temperature be as a result of the increased volume?

Answer

The increase in the minimum average effluent flow rate from the mechanical draft cooling towers referred to in Section 1.3.2.19 of the reference document relates only to an administrative limit governing the initiation of releases of radioactive liquid discharges to the cooling tower effluent. Refer to the fifth paragraph of Section 11.2.1.3, page 11-7 of the reference document, for the application of this administrative limit. Further, this minimum average effluent flow rate formed the basis for dilution of radioactive liquid wastes in the design basis calculation of annual average activity levels entering the Susquehanna River as presented in the reference document. Refer to item 6, Table 11-6 page 11-37 and Table 11-7 pages 11-38 and 11-38a.

Since the mechanical draft cooling tower effluent flow rate from both units is expected to normally be about 35,000 gpm, the actual annual average effluent flow rate is well above the administrative minimum 5000 gpm for initiation of releases of radioactive liquids. Therefore, the increase in minimum average cooling tower effluent flow rate referred to in Section 1.3.2.19, does not affect either the cooling water intake volume or the cooling water effluent temperature.

Question 2

The second paragraph of Section 11.2.1.4 on page 11-7 refers to inadvertent releases of waste material by an operator. Since the effluent already would have entered the environment prior to the radiation monitors terminating the release, is there not some system that would sense radiation levels prior to the release thus preventing the situation?

Answer

Paragraph 11.2.1.3 of the Three Mile Island FSAR describes the methods used to operate the liquid waste disposal system. All disposals to the river are on a batch basis with activity analyses (including an isotopic breakdown if necessary) of samples from the batch being obtained prior to disposal. Based on the batch analysis and the diluent flow rate from the mechanical draft cooling towers, a maximum flow rate for the disposal of the batch is determined. The flow rate of each such batch disposal of radioactive liquids is controlled to ensure that the activity in the cooling tower effluent being discharged to the river is within 10 CFR 20 limits. Set points on the flow and activity monitors (providing direct surveillance over the discharge of a batch) are set accordingly before initiating the discharge.

Batches of liquid waste are not disposed to the effluent from the mechanical draft cooling tower if its flow rate is less than 5,000 gpm and dilution credit is taken only for cooling tower effluent flow rates up to 38,000 gpm. On an average annual basis for liquid waste disposal, the summation is made on the basis that the flow rate of cooling tower effluent has been the minimum 5,000 gpm throughout the year. This method of operation, under design basis conditions of primary coolant activity and quantity, assures that the activity in the cooling tower effluent is within 10 CFR 20 limits.

Paragraph 11.4.4 describes the liquid monitoring system used on Three Mile Island Unit 1. All discharges are continuously monitored with monitors located upstream of the isolation valve. The monitor is calibrated using a CS 137 source and has a sensitivity of 2×10^{-6} to 1×10^{-1} uci/cc for CS 137.

This is the monitor located in the discharge line from the tank in which the liquid to be discharged is stored. It senses the activity level of the discharge and terminates it automatically, in the event that the activity level sensed exceeds its set point. Based on the pump capacity and the control response times, it is estimated that less than 10 gallons (of the 7500 gallons stored in the tank) would be released to the cooling tower effluent before the release was automatically terminated.