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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 20 TO FACILITY OPERATING LICENSE NO. NPF-73

DUQUESNE LIGHT COMPANY

OHIO EDISON COMPANY

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

THE TOLEDO EDISON COMPANY

BEAVER VALLEY POWER STATION, UNIT NO. 2

DOCKET NO. 50-412

INTRODUCTION

By letter dated June 22, 1989, Duquesne Light Company (the licensee, acting as agent for the above utilities) submitted a request to amend the Technical Specifications for Beaver Valley Unit 2. The amendment would increase the maximum river water temperature limit (the ultimate heat sink temperature), and revise several related specifications. We have reviewed the licensee's submittal and our review results follow.

DISCUSSION AND EVALUATION

The ultimate heat sink (i.e. the Ohio River) provides a source of cooling water for normal operation, and to dissipate the heat of an accident to achieve and maintain the unit in a safe shutdown condition. The current design inlet temperature of the service water system (from river water) for Unit 1 is 86°F. The impact of increasing the river water temperature limit from 86°F to 89°F was evaluated by the licensee for its effects on safety-related equipment during normal operation, effects on post-accident containment depressurization/cooling, and effects on reactor safe shutdown. The increase in the allowable river water temperature will provide additional margin to prevent a plant shutdown should abnormally hot weather conditions, as experienced in the summer of 1988, recur.

(1) Figure 3.6-1 and Specifications 3.6.1.4, 3.6.1.5 and 3.7.5.1

Figure 3.6-1, the maximum allowable Primary Containment Air Pressure versus river water temperature curve, has been revised to reflect the revised containment depressurization analysis based on an RWST temperature limit and the increased river water temperature limit. The revised figure includes additional containment average air temperature restrictions when operating with

river water temperature above 87°F as required to support the assumptions of the revised analysis. Technical Specification 3.6.1.4 and 3.6.1.5 for containment maximum air partial pressure and containment minimum temperature are revised to be consistent with the new Figure 3.6-1.

The licensee used the LOCTIC computer code to perform the reanalysis. The reanalysis took into account the following changes:

a. Use of a maximum RWST temperature (50°F)

b. Containment quench spray thermal efficiency is assumed to be 99% (95% was assumed in the licensing basis), and recirculating spray thermal efficiency is assumed to range between 99% and 95% (a constant 90% was assumed in the licensing basis). These are currently acceptable values.

c. Service water flow through the recirculation spray heat exchangers was reduced from 12000 gpm to 11000 gpm.

The results of the licensee's analyses show that the Containment Depressurization System is capable of reducing the containment pressure to subatmospheric within 1 hour for river water temperature up to 87°F. Depressurization will still be attained in an hour if river water temperature is at 89°F or less and initial containment temperature at greater than 100°F. Thus no revisions need be made to accident evaluations in the unit's licensing basis. Furthermore, the reanalysis showed that NPSH requirements will continue to be satisfied for the low head safety injection pumps and recirculation spray pumps.

The licensee evaluated the effect of elevated service water temperature on other plant systems, such as the emergency diesel generators cooling system, control room air conditioning units, safeguards area air conditioning units, etc. All of these evaluations lead to the conclusion that the systems are capable of accepting the increased river water temperature while continuing to perform their intended design functions.

The licensee evaluated the effect of the increased service water temperature on the reactor coolant system's cooldown capability using the residual heat removal systems. At the elevated temperatures, Unit 2 would require 28 hours (instead of 24 hours) to cool down from 350°F to 140°F. There is thus a time increase of about 4 hours, but the longer cooling time is still within acceptable limits. (i.e. 72 hours in the Standard Review Plan).

Based on satisfactory resolution of all the above considerations, we find the increase of service water temperature limits and the associated revised depressurization analysis acceptable.

(2) Bases Sections 3.6.1.4 and 3.6.1.5

The bases sections are revised to reflect the above changes. We concur with the bases.

ENVIRONMENTAL CONSIDERATION

This amendment changes requirements with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. We have determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. We have previously issued a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

CONCLUSION

We have evaluated the effects of increasing the allowable river water temperature on the system and components to perform their safety function, and found the effects to be minor and thus acceptable.

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, and (3) 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: August 30, 1989

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AMENDMENT NO. 20 TO FACILITY OPERATING LICENSE NO. NPF-73

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