August 30, 1989

Docket No. 50-412

Mr. J. D. Sieber, Vice President
Nuclear Group
Duquesne Light Company
Post Office Box 4
Shippingport, Pennsylvania 15077

Dear Mr. Sieber:

SUBJECT: BEAVER VALLEY UNIT 2 ISSUANCE OF AMENDMENT (TAC NO. 73605)

The Commission has issued the enclosed Amendment No. 20 to Facility Operating License No. NPF-73 for the Beaver Valley Power Station, Unit 2, in response to your application dated June 22, 1989.

The amendment raises the maximum allowed service water (river water) temperature from 86°F to 89°F. The amendment also revises a number of requirements associated with this change.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's bi-weekly Federal Register notice.

Sincerely,

Signed by

Peter S. Tam, Senior Project Manager
Project Directorate I-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 20 to NPF-73
2. Safety Evaluation

cc w/enclosures:
See next page

[AMEND 73695]

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

DUQUESNE LIGHT COMPANY

OHIO EDISON COMPANY

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

THE TOLEDO EDISON COMPANY

DOCKET NO. 50-412

BEAVER VALLEY POWER STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 20
License No. NPF-73

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Duquesne Light Company, et al. (the licensee) dated June 22, 1989, complies with the standards requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-73 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 20, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective on issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz, Director
Project Directorate I-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: August 30, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 20

FACILITY OPERATING LICENSE NO. NPF-73

DOCKET NO. 50-334

Replace the following pages of the Appendix A (Technical Specifications) with the enclosed pages as indicated. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

Remove	Insert
3/4 6-6	3/4 6-6
3/4 6-7	3/4 6-7
3/4 6-8	3/4 6-8
3/4 6-13	3/4 6-13
3/4 7-13	3/4 7-13
B3/4 6-1	B3/4 6-1
B3/4 6-2	B3/4 6-2

INTERNAL PRESSURE

LIMITING CONDITION FOR OPERATION

3.6.1.4 Primary Containment internal air partial pressure shall be maintained $\geq$ 9.0 psia and within the acceptable operation range (below and to the left of the applicable containment temperature limit line) shown on Figure 3.6-1 as a function of service water temperature.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With the containment internal air partial pressure < 9.0 psia or above the applicable containment temperature limit line shown on Figure 3.6-1, restore the internal pressure to within the limits within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.4 The primary containment internal pressure shall be determined to be within the limits at least once per 12 hours.

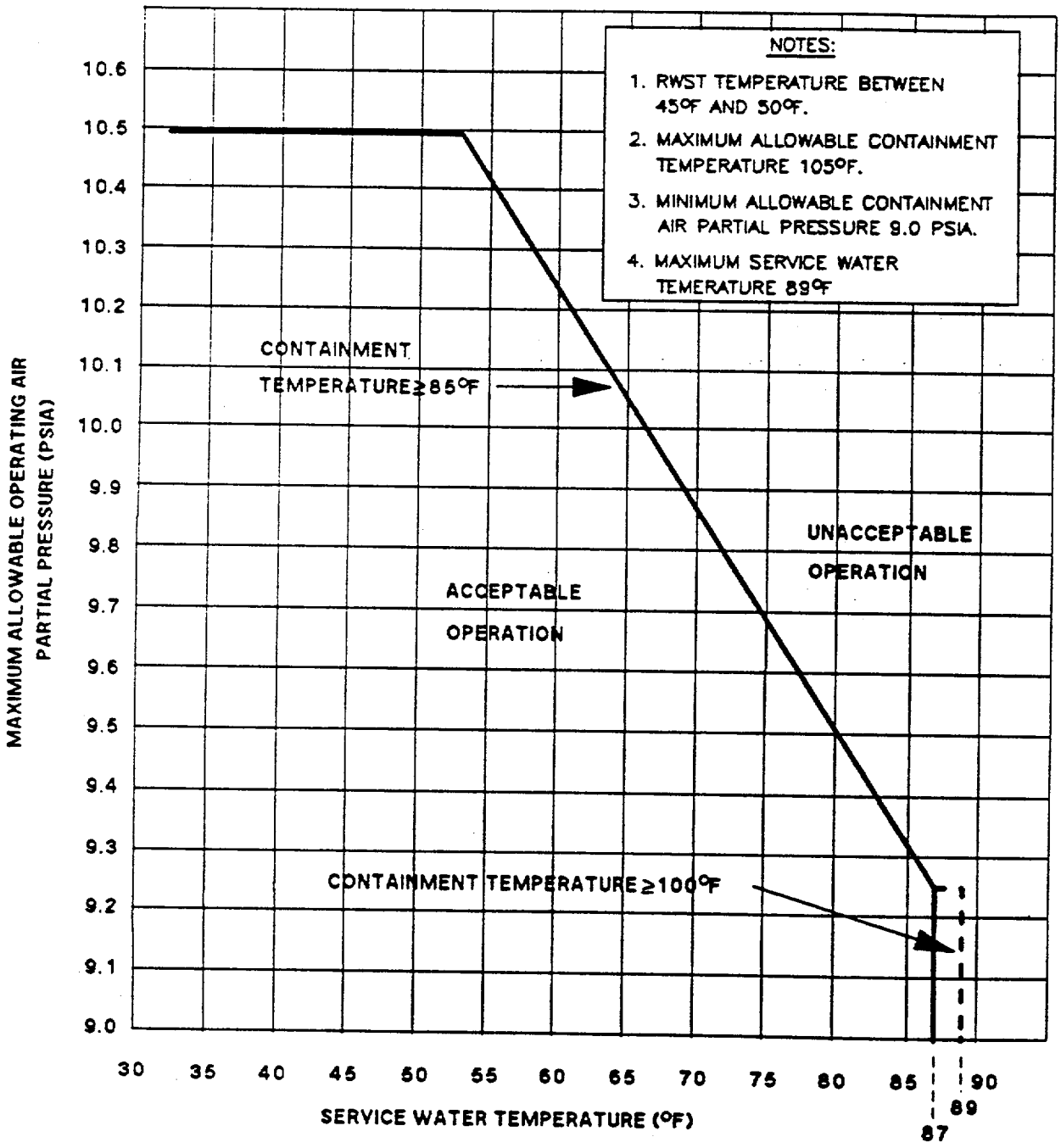

FIGURE 3.6-1

MAXIMUM ALLOWABLE PRIMARY CONTAINMENT AIR PRESSURE VERSUS SERVICE WATER TEMPERATURE

AIR TEMPERATURE

LIMITING CONDITION FOR OPERATION

3.6.1.5 Primary containment average air temperature shall be maintained:

a. Greater than or equal to 85°F and less than or equal to 105°F or

b. Greater than or equal to 100°F and less than or equal to 105°F

in accordance with the requirements of Figure 3.6-1.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With the containment average air temperature > 105°F or less than the minimum containment temperature prescribed in Figure 3.6-1 (85°F or 100°F) restore the average air temperature to within the limit within 8 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.5 The primary containment average maximum and minimum air temperatures shall be the arithmetical average of the temperatures at the following locations and shall be determined at least once per 24 hours. The nearest alternate detector may be used for temperature determination up to a maximum of one per location.

Location

a. Reactor Head Storage Area - Elev. 802'-0"

b. Pressurizer Cubicle - Elev. 802'0"

c. RC Annulus - Elev. 777'-4"

d. RHR Heat Exchanger - Elev. 801'-6"

e. RC Annulus - Elev. 701'-6"

SURVEILLANCE REQUIREMENTS (Continued)

2. Verifying that each automatic valve in the flow path actuates to its correct position on a test signal.*

3. Initiating flow through each Service Water subsystem and its two associated recirculation spray heat exchangers, and verifying a flow rate of at least 11,000 gpm.

f. At least once per 5 years by performing an air or smoke flow test through each spray header and verifying each spray nozzle is unobstructed.

*The specified 18-month surveillance interval during the first fuel cycle may be extended to coincide with completion of the first refueling outage.

3/4.7.5 ULTIMATE HEAT SINK - OHIO RIVER

LIMITING CONDITION FOR OPERATION

3.7.5.1 The ultimate heat sink shall be OPERABLE with:

a. A minimum water level at or above elevation 654 Mean Sea Level, at the intake structure, and

b. An average water temperature of $\leq$ 89°F.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With the requirements of the above specification not satisfied, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.5.1 The ultimate heat sink shall be determined OPERABLE at least once per 24 hours by verifying the average water temperature and water level to be within their limits.

BASES

3/4.6.1 PRIMARY CONTAINMENT

3/4.6.1.1 CONTAINMENT INTEGRITY

Primary CONTAINMENT INTEGRITY ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the accident analyses. This restriction, in conjunction with the leakage rate limitation, will limit the site boundary radiation doses to within the limits of 10 CFR 100 during accident conditions.

3/4.6.1.2 CONTAINMENT LEAKAGE

The limitations on containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the accident analyses at the peak accident pressure, P_a. As an added conservatism, the measured overall integrated leakage rate is further limited to $\leq$ 0.75 La during performance of the periodic test to account for possible degradation of the containment leakage barriers between leakage tests.

The surveillance testing for measuring leakage rates are consistent with the requirements of Appendix "J" of 10 CFR 50.

3/4.6.1.3 CONTAINMENT AIR LOCKS

The limitations on closure and leak rate for the containment air locks are required to meet the restrictions on CONTAINMENT INTEGRITY and containment leak rate. Surveillance testing of the air lock seals provides assurance that the overall air lock leakage will not become excessive due to seal damage during the intervals between air lock leakage tests.

3/4.6.1.4 and 3/4.6.1.5 INTERNAL PRESSURE AND AIR TEMPERATURE

The limitations on containment internal pressure and average air temperature as a function of service water temperature ensure that 1) the containment structure is prevented from exceeding its design negative pressure of 8.0 psia, 2) the containment peak pressure does not exceed the design pressure of 45 psig during LOCA conditions, and 3) the containment pressure is returned to sub-atmospheric conditions following a LOCA.

The containment internal pressure and temperature limits shown as a function of service water temperature describe the operational envelope that will 1) limit the containment peak pressure to less than its design value

3/4.6.1.4 AND 3/4.6.1.5 INTERNAL PRESSURE AND AIR TEMPERATURE (Continued)

of 45 psig and 2) ensure the containment internal pressure returns subatmospheric within 60 minutes following a LOCA. Additional operating margin is provided if the containment average air temperature is maintained above 100°F as shown on Figure 3.6-1.

The limits on the parameters of Figure 3.6-1 are consistent with the assumptions of the accident analyses.

3/4.6.1.6 CONTAINMENT STRUCTURAL INTEGRITY

This limitation ensures that the structural integrity of the containment vessel will be maintained comparable to the original design standards for the life of the facility. Structural integrity is required to ensure that the vessel will withstand the maximum pressure of 44.7 psig in the event of a LOCA. The visual and Type A leakage tests are sufficient to demonstrate this capability.

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 and 3/4.6.2.2 CONTAINMENT QUENCH AND RECIRCULATION SPRAY SYSTEMS

The OPERABILITY of the containment spray systems ensures that containment depressurization and subsequent return to subatmospheric pressure will occur in the event of a LOCA. The pressure reduction and resultant termination of containment leakage are consistent with the assumptions used in the accident analyses.

3/4.6.2.3 CHEMICAL ADDITION SYSTEM

The OPERABILITY of the chemical addition system ensures that sufficient NaOH is added to the containment spray in the event of a LOCA. The limits on NaOH minimum volume and concentration, ensure that 1) the iodine removal efficiency of the spray water is maintained because of the increase in pH value, and 2) corrosion effects on components within containment are minimized. These assumptions are consistent with the iodine removal efficiency assumed in the accident analyses.

3/4.6.3 CONTAINMENT ISOLATION VALVES

The OPERABILITY of the containment isolation valves ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment. Containment isolation within the time limits specified ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for both a LOCA and major secondary system breaks.

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

Principal Contributors: Jin Guo and Peter S. Tam

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

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