July 27, 1989

Docket No. 50-334

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 1 ISSUANCE OF AMENDMENT (TAC NO. 73604)

The Commission has issued the enclosed Amendment No. 143 to Facility Operating License No. DPR-66 for the Beaver Valley Power Station, Unit 1, in response to your application dated June 22, 1989, and supplement dated July 24, 1989.

The amendment raises the maximum allowed service water (river water) temperature from 86°F to 90°F for Unit 1. 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 and Final Determination of No Significant Hazards Consideration and Opportunity for Hearing will be included in the Commission's bi-weekly Federal Register notice.

Sincerely,

/s/

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. 143 to DPR-66
2. Safety Evaluation

cc w/enclosures:
See next page

[AMEND 73694/5]

Region 1 K. Cowgill was contacted by phone, 7/26/89, P. Wilson by phone 7/27/89

OFC	:LA:PDI-4	:PM:PDI-4	:PD:PDI-4	:BC:SPLB *	:OGC	:Region 1	:ADR1
NAME	:SNorris	:PTam:lm	:JStolz	:CMCCraken	:SHLewis	:	:BBoger
DATE	:7/26/89	:7/26/89	:7/27/89	:7/27/89	:7/27/89	:7/ /89	:7/27/89

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*PREVIOUSLY CONCURRED

*See second concurrence page

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1/1

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[AMEND 73694/5]

OFC	:LA:PDI-4	:PM:PDI-4	:PD:PDI-4	:BC:SPLB	:OGC *	:Region 1 *	:ADR1
NAME	:SNorris	:PTam:lm	:JStolz *	:CMCCraken	:	:	:BBoger *
DATE	:7/24/89	:7/26/89	:7/ /89	:7/27/89	:7/ /89	:7/ /89	:7/27/89

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*See first concurrence page

AMENDMENT NOS. 143 TO FACILITY OPERATING LICENSE NO. DPR-66

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

DUQUESNE LIGHT COMPANY

OHIO EDISON COMPANY

PENNSYLVANIA POWER COMPANY

DOCKET NO. 50-334

BEAVER VALLEY POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 143
License No. DPR-66

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 and supplement dated July 24, 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. DPR-66 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 143, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective on issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

(for) Walter Butler

Bruce A. Boger, Assistant Director
for Region I Reactors
Division of Reactor Projects I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 27, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 143

FACILITY OPERATING LICENSE NO. DPR-66

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 1-15	3/4 1-15
3/4 1-16	3/4 1-16
3/4 1-17	3/4 1-17
3/4 3-22a	3/6 3-22a
3/4 3-27	3/4 3-27
3/4 6-2	3/4 6-2
3/4 6-3	3/4 6-3
3/4 6-5	3/4 6-5
3/4 6-5a	3/4 6-5a
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 6-11	3/4 6-11
3/4 6-13	3/4 6-13
3/4 7-14	3/4 7-14
B3/4 6-2	B3/4 6-2

BORATED WATER SOURCES - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.7 As a minimum, one of the following borated water sources shall be OPERABLE:

a. A boric acid storage system with:

1. A minimum contained volume of 5000 gallons,
2. Between 7000 and 7700 ppm of boron, and
3. A minimum solution temperature of 65°F.

b. The refueling water storage tank with:

1. A minimum contained volume of 175,000 gallons,
2. A minimum boron concentration of 2000 ppm, and
3. A minimum solution temperature of 45°F.

APPLICABILITY: MODES 5 and 6.

ACTION:

With no borated water source OPERABLE, suspend all operations involving CORE ALTERATIONS or positive reactivity changes until at least one borated water source is restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

4.1.2.7 The above required borated water source shall be demonstrated OPERABLE:

a. At least once per 7 days by:

1. Verifying the boron concentration of the water,
2. Verifying the water level of the tank, and
3. Verifying the boric acid storage tank solution temperature when it is the source of borated water.

b. At least once per 24 hours by verifying the RWST temperature when it is the source of borated water and the outside ambient air temperature is <45°F.

REACTIVITY CONTROL SYSTEMS

BORATED WATER SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.8 As a minimum, the following borated water source(s) shall be OPERABLE as required by Specification 3.1.2.2.

a. A boric acid storage system with:

1. A minimum contained volume of 11,336 gallons,

2. Between 7000 and 7700 ppm of boron, and

3. A minimum solution temperature of 65°F.

b. The refueling water storage tank with:

1. A contained volume between 439,050 gallons and 441,100 gallons of borated water,

2. A boron concentration between 2000 and 2100 ppm, and

3. A solution temperature of $\geq$45°F and $\leq$55°F.

APPLICABILITY: MODES 1, 2, 3 & 4.

ACTION:

a. With the boric acid storage system inoperable, restore the storage system to OPERABLE status within 72 hours or be in at least HOT STANDBY and borated to a SHUTDOWN MARGIN equivalent to at least 1% delta k/k at 200°F within the next 6 hours; restore the boric acid storage system to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

b. With the refueling water storage tank inoperable, restore the tank to OPERABLE status within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.1.2.8 Each borated water source shall be demonstrated OPERABLE:

SURVEILLANCE REQUIREMENTS (Continued)

a. At least once per 7 days by:

1. Verifying the boron concentration in each water source,

2. Verifying the water level in each water source, and

3. Verifying the boric acid storage system solution temperature.

b. At least once per 24 hours by verifying the RWST temperature when the RWST ambient air temperature is <45°F or >55°F.

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
1.1 SAFETY INJECTION-TRANSFER FROM INJECTION TO THE RECIRCULATION MODE		
a. Manual Initiation	Not Applicable	Not Applicable
b. Automatic Actuation Logic Coincident with Safety Injection Signal	Not Applicable	Not Applicable
c. Refueling Water Storage Tank Level-Low	18'8-1/2"	≥18'2-1/2" and ≤19'2-1/2"
d. Refueling Water Storage Tank Level - Auto QS Flow Reduction	8'6"	≥8'0" and ≤9'0"

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
4. Steam Line Pressure-Low	
a. Safety Injection (ECCS)	≤ 27.0#/37.0##
b. Reactor Trip (from SI)	≤ 3.0
c. Feedwater Isolation	≤ 75.0(1)
d. Containment Isolation-Phase "A"	≤ 22.0(3)/33.0(2)
e. Auxiliary Feedwater Pumps	Not Applicable
f. Rx Plant River Water System	≤ 77.0(3)/110.0(2)
g. Steam Line Isolation	≤ 8.0
5. Containment Pressure--High-High	
a. Containment Quench Spray	≤ 85.0(2)
b. Containment Isolation-Phase "B"	Not Applicable
c. Control Room Ventilation Isolation	≤ 22.0(3)/77.0(2)
6. Steam Generator Water Level--High-High	
a. Turbine Trip-Reactor Trip (Above P-9)	≤ 2.5
b. Feedwater Isolation	≤ 13.0(2)
7. Containment Pressure--Intermediate High-High	
a. Steam Line Isolation	≤ 8.0
8. Steamline Pressure Rate--High Negative	
a. Steamline Isolation	≤ 8.0
9. Loss of Power	
a. 4.16kv Emergency Bus Undervoltage (Loss of Voltage)	≤ 1.3
b. 4.16kv and 480v Emergency Bus Undervoltage (Degraded Voltage)	≤ 95

CONTAINMENT LEAKAGE

LIMITING CONDITION FOR OPERATION

3.6.1.2 Containment leakage rates shall be limited to:

a. An overall integrated leakage rate of:

1. $< L_a$, 0.10 percent by weight of the containment air per 24 hours at P_a, (40.0 psig), or

b. A combined leakage rate of $\leq 0.60\ L_a$ for all penetrations and valves subject to Type B and C tests as identified in Table 3.6-1, when pressurized to P_a.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With either (a) the measured overall integrated containment leakage rate exceeding $0.75\ L_a$, or (b) with the measured combined leakage rate for all penetrations and valves subject to Types B and C tests exceeding $0.60\ L_a$, restore the leakage rate(s) to within the limit(s) prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The containment leakage rates shall be demonstrated at the following test schedule and shall be determined in conformance with the criteria specified in Appendix J of 10 CFR 50* using the methods and provisions of ANSI N45.4-1972:

a. A Type-A test (Overall Integrated Containment Leakage Rate) shall be conducted at 40 ± 10-month intervals during shutdown at P_a (40.0 psig).

---

* Exemption to Appendix J of 10 CFR 50, Section III.D.1(a), granted on December 5, 1984.

SURVEILLANCE REQUIREMENTS (Continued)

b. If any periodic Type A test fails to meet .75 L_a, the test schedule for subsequent Type A tests shall be reviewed and approved by the Commission. If two consecutive Type A tests fail to meet .75 L_a, a Type A test shall be performed at least every 18 months until two consecutive Type A tests meet .75 L_a at which time the above test schedule may be resumed.

c. The accuracy of each Type A test shall be verified by a supplemental test which:

1. Confirms the accuracy of the Type A test by verifying that the difference between supplemental and Type A test data is within 0.25 L_a.

2. Has a duration sufficient to accurately establish the change in leakage for between the Type A test and the supplemental test.

3. Requires the quantity of gas injected into the containment or bled from the containment during the supplemental test to be equivalent to at least 25 percent of the total measured leakage rate at P_a (40.0 psig).

d. Type B and C tests shall be conducted with gas at P_a*(40.0 psig) at intervals no greater than 24 months except for tests involving:

1. Air locks,

2. Penetrations using continuous leakage monitoring systems, and

3. Valves pressurized with fluid from a seal system.

e. Air locks shall be tested and demonstrated OPERABLE per Surveillance Requirement 4.6.1.3.

f. Leakage from isolation valves that are sealed with fluid from a seal system may be excluded, subject to the provisions of Appendix J, Section III.C.3, when determining the combined leakage rate provided the seal system and valves are pressurized to at least 1.10 P_a (44.0 psig) and the seal system capacity is adequate to maintain system pressure for at least 30 days.

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* Applicable valves may be tested using water as the pressure fluid in accordance with the Inservice Testing Program.

CONTAINMENT AIR LOCKS

LIMITING CONDITION FOR OPERATION

3.6.1.3 Each containment air lock shall be OPERABLE with:

a. Both doors closed except when the air lock is being used for normal transit entry and exit through the containment, then at least one air lock door shall be closed, and

b. An overall air lock leakage rate of less than or equal to 0.05 L_a at P_a (40.0 psig).

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With one containment air lock door inoperable:

1. Maintain the associated OPERABLE air lock door closed and either restore the associated inoperable air lock door to OPERABLE status within 24 hours or lock the associated OPERABLE air lock door closed.

2. Operation may then continue until performance of the next required overall air lock leakage test provided that the associated OPERABLE air lock door is verified to be locked closed at least once per 31 days.

3. Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

4. The provisions of Specification 3.0.4 are not applicable.

b. With a containment air lock inoperable, except as the result of an inoperable air lock door, maintain at least one air lock door closed; restore the inoperable air lock to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

a. Within 72 hours following each containment entry, except when the air lock is being used for multiple entries, then at least once per 72 hours, by verifying no detectable seal leakage when the gap between the door seals is pressurized for at least 2 minutes to:

1. Personnel airlock $\geq$ 40.0 psig

2. Emergency air lock $\geq$ 10.0 psig

or, by quantifying the total air lock leakage to insure the requirements of 3.6.1.3.b are met.

b. By conducting overall air lock leakage tests, at not less than P_a (40.0 psig), and verifying the overall air lock leakage rate is within its limit:

1. At least once per 6 months, # and

2. Upon completion of maintenance which has been performed on the air lock that could affect the air lock sealing capability.*

c. At least once per 18 months during shutdown by verifying:

1. Only one door in each air lock can be opened at a time, and

2. No detectable seal leakage when the volume between the emergency air lock shaft seals is pressurized to greater than or equal to 40.0 psig for at least 2 minutes.

The provisions of Specification 4.0.2 are not applicable.
* Exemption to Appendix J of 10 CFR 50, dated November 19, 1984.

INTERNAL PRESSURE

LIMITING CONDITION FOR OPERATION

3.6.1.4 Primary Containment internal air partial pressure shall be maintained $\geq$ 8.9 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 river water temperature.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With the containment internal air partial pressure < 8.9 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.

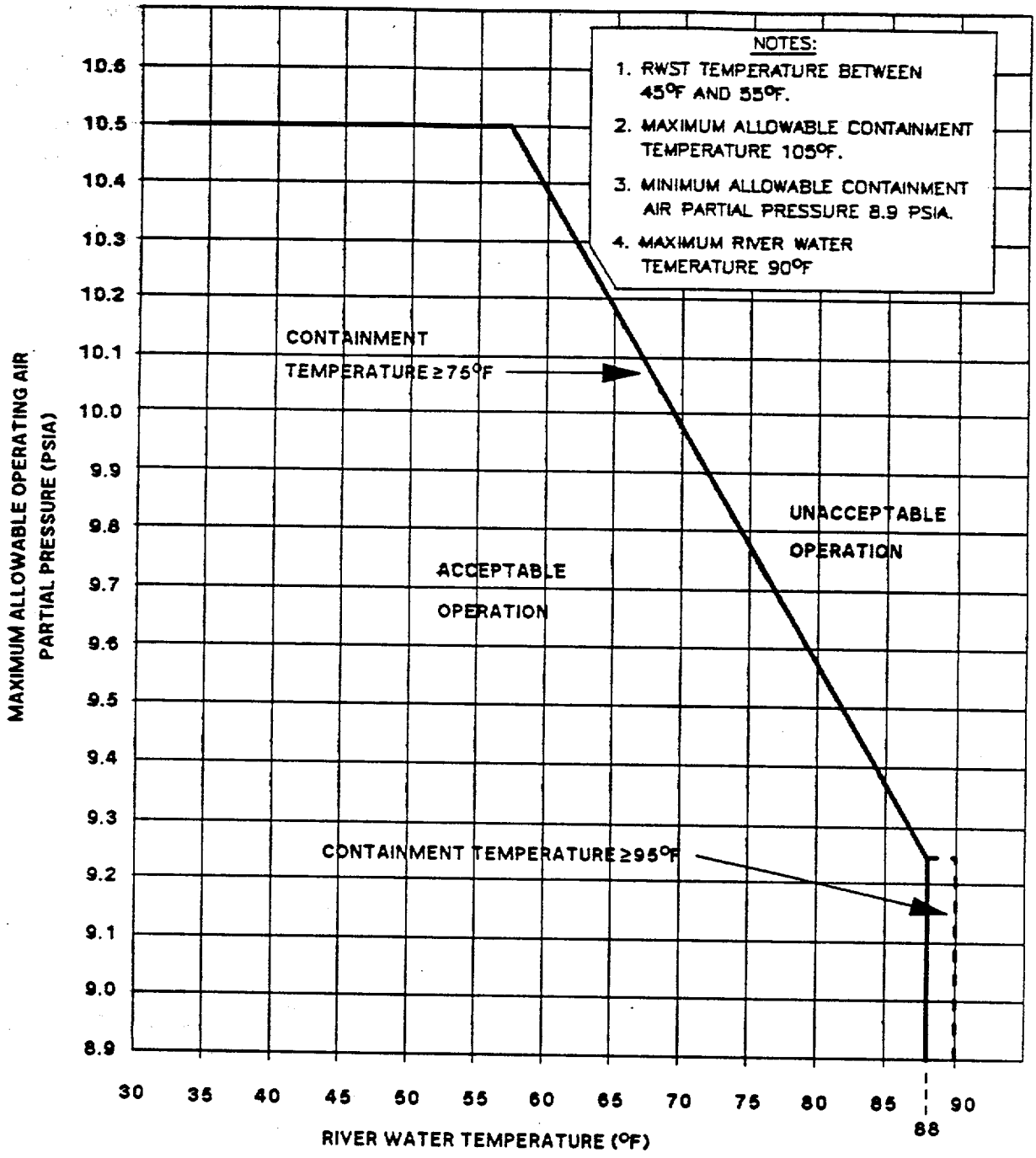

FIGURE 3.6-1

MAXIMUM ALLOWABLE PRIMARY CONTAINMENT AIR PRESSURE VERSUS RIVER WATER TEMPERATURE

CONTAINMENT SYSTEMS

AIR TEMPERATURE

LIMITING CONDITION FOR OPERATION

3.6.1.5 Primary containment average air temperature shall be maintained:

a. Greater than or equal to 75°F and less than or equal to 105°F, or

b. Greater than or equal to 95°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 (75°F or 95°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 thermocouple may be used for temperature determination up to a maximum of one per location.

Location

a. Reactor Head Storage Area - Elev. 802

b. Pressurizer Cubicle - Elev. 740

c. Annulus - Elev. 777

d. RHR Heat Exchanger - Elev. 730

e. Annulus - Elev. 701

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

CONTAINMENT QUENCH SPRAY SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.1 Two separate and independent containment quench spray subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one containment quench spray subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.1 Each containment quench spray subsystem shall be demonstrated OPERABLE;

a. At least once per 31 days by:

1. Verifying that each valve (manual, power-operated, or automatic) in the flow path not locked, sealed, or otherwise secured in position, is in its correct position; and

2. Verifying the temperature of the borated water in the refueling water storage tank is within the limits of Specification 3.1.2.8.b.3.

b. At least once per 31 days on a STAGGERED TEST BASIS, by verifying, that on recirculation flow, each pump develops a differential pressure of greater than or equal to 142 psid at a flow of $\geq$ 1600 gpm when tested pursuant to Specification 4.0.5.

CONTAINMENT RECIRCULATION SPRAY SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.2 Four separate and independent containment recirculation spray subsystems, each composed of a spray pump, associated heat exchanger and flow path shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one containment recirculation spray subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 7 days or be in HOT STANDBY within the next 6 hours; restore the inoperable spray system to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.2 Each containment recirculation spray subsystem shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each accessible valve (manual, power-operated, or automatic) in the flow path not locked, sealed or otherwise secured in position, is in its correct position;

b. When tested pursuant to Specification 4.0.5, manually start each recirculation spray pump and verify the pump shaft rotates;

c. At least once per 18 months by verifying that on a Containment Pressure-High-High signal, the recirculation spray pumps start automatically as follows:

RS-P-1A and RS-P-2B	210 ± 5 second delay
RS-P-2A and RS-P-1B	225 ± 5 second delay

d. At least once per 18 months during shutdown, verify that on recirculation flow, each pump develops the required differential pressure and flow rate as shown below when tested pursuant to Specification 4.0.5:

RS-P-1A and RS-P-1B	≥ 127 psid at ≥ 2000 gpm
RS-P-2A and RS-P-2B	≥ 132 psid at ≥ 2000 gpm

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$90°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.

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 river 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 subatmospheric conditions following a LOCA.

The containment internal pressure and temperature limits shown as a function of river water temperature describe the operational envelope that will 1) limit the containment peak pressure to less than its design value of 45 psig and 2) ensure the containment internal pressure returns subatmospheric within 60 minutes following a LOCA.

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 40.0 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.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 143 TO

FACILITY OPERATING LICENSE NO. DPR-66

DUQUESNE LIGHT COMPANY
OHIO EDISON COMPANY
PENNSYLVANIA POWER COMPANY

BEAVER VALLEY POWER STATION, UNIT NO. 1

DOCKET NO. 50-334

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 1. The amendment would increase the maximum river water temperature limit (the ultimate heat sink temperature), and revise several related specifications. By letter dated July 24, 1989 the licensee requested issuance of an amendment under emergency conditions. We have reviewed the licensee's submittals 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 90°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, reoccur.

(1) Specifications 3.1.2.7.b.3, 3.1.2.8.b.3, 4.1.2.7.b, 4.1.2.8.b, and 4.8.2.1.b

The minimum Refueling Water Storage Tank (RWST) temperature is changed from 43°F to 45°F. This change is required to make the limit consistent with the assumptions used in the analysis to support this amendment. A minimum RWST temperature of 45°F is used for analysis of inadvertent operation of the Quench Spray System. This analysis establishes the minimum allowable containment air partial pressure. In addition, a maximum allowable RWST temperature of 55°F is now imposed in specification 3.1.2.8. This limit is consistent with the maximum RWST temperature also assumed in the revised containment depressurization analysis. Surveillance requirement 4.6.2.1.a.2 is revised to refer to the allowable RWST temperature range given in Specification 3.1.2.8.

These changes are results of a reanalysis (see change (4) below), and are acceptable on the basis that change (4) is acceptable.

(2) Table 3.5-5, Engineered Safety Features Response Times

The Quench Spray response time listed in Table 3.3-5 is increased to 85 seconds from 77 seconds. This change is a result of the observations made from the licensee's recent Safety System Functional Evaluation (SSFE) review of the Quench Spray System, and is required to maintain consistency between the overall system response time and the individual component requirements. The 85 second limit is the sum of 10 seconds for diesel generator startup and loading and 75 seconds for stroke time of the Quench Spray containment isolation valves. These values have been assumed in calculating the Quench Spray delay time for the containment analyses depressurization analysis.

On the basis that the change is a refinement of a calculational model, and has been factored in change (4) below, we find it acceptable.

(3) Specifications 3.6.1.2, 4.6.1.2, 3.6.1.3 and 4.6.1.3

The previously calculated peak containment pressure for a DBA-LOCA is changed from 38.3 psig to 40.0 psig. This change is the result of using a more conservative value for containment free volume in the containment depressurization reanalysis. Specifically, the licensee factored uncertainty values into the previously used licensing basis value for the new calculation: minimum volumes were thus used for peak pressure and depressurization calculations, and maximum volumes were used for NPSH (net positive suction head) calculations. The methodology of the computer codes used for these analyses have been previously reviewed and found acceptable by the staff.

The new calculated peak pressure is still within the containment design pressure of 45 psig, and the leakage criteria imposed by these specifications are not relaxed. Furthermore, the containment leakage test pressure is changed from 38.3 psig to 40.0 psig which is more conservative. We find this change acceptable.

(4) 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 a single 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 88°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 single maximum RWST temperature (55°F)

b. New RWST setpoints for spray recirculation and quench spray cutback were used (see change (6) below).

c. Use of reduced containment net free volume (see change (3) above).

d. Assumption of 10% degradation of rated head for the quench spray and recirculation spray pumps, in accordance with ASME Section XI, and addressing the licensee's SSFE concerns.

e. 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.

f. Use of ANS 5.1-1979 model for decay heat generation (previously, ANS 5.1-1971 was used).

g. Reactor thermal power of 2733 MWT, i.e. licensed rating plus 2% uncertainty (previously, the ESF rating of 2766 MWT was used).

h. Credit for steam condensation by safety injection during reflooding was assumed (previously not allowed).

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 88°F. Depressurization will still be attained in an hour if river water temperature was at 90°F or less and initial containment temperature at greater than 95°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 system 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 1 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.

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.

(5) Section 4.6.2.1.b and 4.6.2.2.d

The surveillance requirements of the Quench and Recirculation Pumps are revised to reflect the allowable margins for pump degradation assumed in the revised containment depressurization analysis (see item d. of change (4)). This change is acceptable on the basis that the revised depressurization analysis is acceptable.

(6) Table 3.3-4

The RWST level-auto quench spray flow reduction setpoint is revised from 11'0" to 8'6"; the allowable value is also reduced by 2 1/2'. Similarly, the RWST level low set point is changed from 19' 2-½"to 18' 8-½"; the new allowable value is set at ± 6". These setpoint changes are required to include revised instrument channel uncertainties into the analysis. New reactor trip and ESF instrument channel inaccuracies were recently calculated for Beaver Valley Unit 1 using an updated methodology described in Westinghouse topical report WCAP-11419. Changes to the reactor trip and ESF setpoints and allowable values based on this revised methodology were submitted to the NRC in Technical Specification Change Request No. 156 (No significant hazards notice published in Federal Register, 54 FR 15828). These proposed RWST level setpoint changes were used in the revised containment depressurization analysis.

The revised values provide corrections to the previous values. On the basis that the revised depressurization analysis is acceptable, changes to Table 3.3-4 are also acceptable.

(7) Bases Sections 3.6.1.4, 3.6.1.5 and 3.6.1.6

The bases sections are revised to reflect change (4) above, and are thus acceptable.

EMERGENCY CIRCUMSTANCES

The licensee's July 24, 1989 letter presents the following with regard to justification of the emergency consideration of the June 22, 1989 application:

> During the evaluation process to support this license change, it was determined that the current Unit 1 technical specifications for river water temperature [3.7.5.1], RWST temperature [3.1.2.8] and containment air partial pressure [3.6.1.4] provided ambiguous information during periods when the river water temperature exceeded 80°F. With the minimum RWST temperature attainable at this time of approximately 53°F and our current maximum allowable containment air partial pressure operating curve [Figure 3.6-1] of specification 3.6.1.4, a Unit 1 plant shutdown may be required below the 86°F maximum temperature limit of specification 3.6.5.1. Due to the recent abnormally high ambient temperatures and forecast for additional hot weather, our river water temperature has increased such that a plant shutdown could be required within the next few days if the proposed technical specification change is not approved.

The revised analyses, as submitted in our proposed technical specification change request were substantial. This submittal was not provided in a more timely manner due to the significant amount of plant re-analysis and reviews required to support this change. These analyses included multiple LOCTIC input changes for the evaluation of the containment depressurization capability, NPSH evaluation of the containment depressurization pumps, River Water System components operation at the increased temperature limit and plant cooldown duration.

We conclude that failure to grant the emergency license amendment would require shutdown of Unit 1.

Based upon the above, we conclude that the licensee has adequately addressed the standards of 10 CFR 50.91(a)(5) with regard to demonstrating the need for an emergency license amendment. We further conclude, based on our frequent monitoring of the licensee's activities leading to the requested amendment, that the licensee has not abused the emergency provision by failing to make timely application for the amendment.

FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission's regulations in 10 CFR 50.92 state that the Commission may make a final determination that a license amendment involves no significant hazards considerations, if operation of the facility, in accordance with the amendment would not:

(1) Involve a significant increase in the probability or consequences of any accident previously evaluated; or

(2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or

(3) Involve a significant reduction in a margin of safety.

This amendment has been evaluated against the standards in 10 CFR 50.92. It does not involve a significant hazards consideration because the answers to the three criteria are all negative as follows:

We have re-evaluated previously analyzed accidents and determined that no accidents were caused by high river water temperature. Furthermore, we determined that despite the proposed changes to the technical specifications, the original design requirement of the containment depressurization system will continue to be met, and safety-related systems which require river water cooling will be capable of performing their original design functions at the increased service water temperature limit. Hence the probability and consequences of previously analyzed accidents will not be increased.

There is no hardware, software or operational procedure changes as a result of the proposed amendment, and hence no new failure modes are introduced.

The amendment does involve a slight relaxation of the river water temperature. However, the above evaluation shows that the safety systems and non-safety systems will continue to meet their original design criteria. Hence we conclude that the relaxation in safety margin is insignificant.

STATE CONSULTATION

In accordance with the Commission's regulations, efforts were made to contact the Commonwealth of Pennsylvania representatives. The state (Mr. Richard Janati) representative was contacted and had no comments.

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. We have also made a final no significant hazards consideration finding with respect to this amendment. 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: July 27, 1989

Principal Contributor: Jin Guo and Peter S. Tam