Docket

MAR 16 1981

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U.S. NUCLEAR REGULATORY COMMISSION

Docket No. 50-334

Mr. C. N. Dunn, Vice President
Operations Division
Duquesne Light Company
435 Sixth Avenue
Pittsburgh, Pennsylvania 15219

Dear Mr. Dunn:

This confirms our telephoned authorization given on March 14, 1981, for a change in Technical Specifications for the Beaver Valley Nuclear Power Station, Unit No. 1, as requested by telecopy on March 13, 1981. Facility Operating License No. DPR-66 is amended on March 14, 1981, by making the following technical specification change:

Remove Pages	Insert Pages
3/4 4-1	3/4 4-1
3/4 4-2a	3/4 4-2a
3/4 4-3	3/4 4-2b
3/4 4-4	3/4 4-2c
3/4 7-24	3/4 4-2d
3/4 7-25	3/4 4-3
3/4 9-8	3/4 4-4
3/4 9-10	3/4 7-24
B 3/4 4-1	3/4 7-25
B 3/4 7-5	3/4 9-8
B 3/4 9-2	3/4 9-8a
	3/4 9-10
	B 3/4 4-1
	B 3/4 4-1a
	B 3/4 7-5
	B 3/4 9-2

This change provides a redundancy in decay heat removal capability for the plant in all modes of operation and revises the surveillance requirement for the residual heat removal pumps to require that each pump develop a differential pressure of ≥112 psi on recirculation flow rather than a discharge pressure of ≥135 psig. The proposed amendment to Facility Operating License No. DPR-66 is attached as an enclosure to this letter.

P

8103240622

OFFICE							
SURNAME							
DATE							

Copies of the license amendment our evaluation and Federal Register Notice for this technical specification change will be sent to you when completed.

Sincerely,

ORIGINAL SIGNED

Thomas M. Novak, Assistant Director
for Operating Reactors
Division of Licensing

Enclosure:
As stated

cc w/encl:
See next page

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Docket

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

March 16, 1981

Docket No. 50-334

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Operations Division
Duquesne Light Company
435 Sixth Avenue
Pittsburgh, Pennsylvania 15219

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B 3/4 9-2	3/4 9-8a
	3/4 9-10
	B 3/4 4-1
	B 3/4 4-1a
	B 3/4 7-5
	B 3/4 9-2

This change provides a redundancy in decay heat removal capability for the plant in all modes of operation and revises the surveillance requirement for the residual heat removal pumps to require that each pump develop a differential pressure of $\geq$112 psi on recirculation flow rather than a discharge pressure of $\geq$135 psig. The proposed amendment to Facility Operating License No. DPR-66 is attached as an enclosure to this letter.

Copies of the license amendment our evaluation and Federal Register Notice for this technical specification change will be sent to you when completed.

Sincerely,

Thomas M. Novak, Assistant Director
for Operating Reactors
Division of Licensing

Enclosure:
As stated

cc w/encl:
See next page

Mr. C. N. Dunn
Duquesne Light Company

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Duquesne Light
435 Sixth Avenue
Pittsburgh, Pa.
15219

(412) 456-6000

March 13, 1981

Director of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Attn: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing
Washington, DC 20555

Reference: Beaver Valley Power Station, Unit No. 1
Docket No. 50-334, License No. DPR-66
Request for Amendment 60 to Operating License

Gentlemen:

Enclosed are three (3) signed originals and thirty-seven (37) copies of a proposed change to the Beaver Valley Power Station Appendix A Technical Specifications. This change is being submitted to provide a redundancy in decay heat removal capability for the plant in all modes of operation. The proposed change is in response to your letters of June 11, 1980 and February 1981. Additionally, in our response dated September 23, 1980 to your letter of August 15, 1980 concerning the water level in the refueling cavity, we indicated that the Technical Specifications for water level would be provided with the proposed decay heat removal change. The proposed change for the water level in the refueling cavity has been included as part of this propose change.

Safety Evaluation

The requirement for redundancy in decay heat removal capability as set forth in these proposed technical specifications provides additional assuranc that sufficient core heat removal capability is available. This additional capability increases the probability that adequate flow to ensure mixing, prevent stratification and produce gradual reactivity changes during boron concentration reductions will be maintained. The original basis provided for single failure considerations in the HOT STANDBY mode. The revised basis provides for single failure considerations during all modes of operatio This proposed change provides for additional assurance for safe operation during all modes of operation, and decreases the likelihood of the consequences of a loss of decay heat removal by providing redundancy.

The OSC and ORC have reviewed the proposed change and have determined that there are no safety implications associated with the change and that the change does not constitute an unreviewed safety question.

dupe 8103170147

We have determined the change to be a class III amendment and we are enclosing a check for $4,000 in accordance with 10 CFR 170.22.

We would like to request the change be handled on an emergency basis.

Very truly yours,

C. N. Dunn
Vice President, Operation

cc: D. A. Beckman, Resident Inspector
U.S. Nuclear Regulatory Commission
Beaver Valley Power Station
Shippingport, PA 15077

U.S. Nuclear Regulatory Commission
c/o Document Management Branch
Washington, DC 20555

(CORPORATE SEAL)

Attest:

Thomas Welfer Jr.
Secretary

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF ALLEGHENY)

On this 13TH day of MARCH, 1981, before me, DONALD W. SHANNON, a Notary Public in and for said Commonwea and County, personally appeared C. N. Dunn, who being duly sworn, depo and said that (1) he is Vice President of Duquesne Light, (2) he is du authorized to execute and file the foregoing Submittal on behalf of sa Company, and (3) the statements set forth in the Submittal are true an correct to the best of his knowledge, information and belief.

DONALD W. SHANNON, NOTARY PUBLIC
PITTSBURGH, ALLEGHENY COUNTY
MY COMMISSION EXPIRES JUNE 7, 1983
Member, Pennsylvania Association of Notaries

TACS 42092 11 From: Beaver Valley

ATTN: DENNIS CHANEY

Telecopy: #301-492-7617

verify: 301-492-7371

/4.4 REACTOR COOLANT SYSTEM

/4.4.1 REACTOR COOLANT LOOPS

ORMAL OPERATION

IMITING CONDITION FOR OPERATION

.4.1.1 All reactor coolant loops shall be in operation.

APPLICABILITY: MODES 1 and 2 *

ACTION:

Above P-7, comply with either of the following ACTIONS:

a. With one reactor coolant loop and associated pump not in operation, subsequent STARTUP and POWER OPERATION above 26% of RATED THERMAL POWER may proceed provided:

1. The following actions have been completed with the reactor subcritical:

a) Reduce the overtemperature ΔT trip setpoint to the value specified in Specification 2.2.1 for 2 loop operation.

* See Special Test Exception 3.10.5

DESIRED WORDING

dupl 8103170151

-2-

CTION (Continued)

elow P-7:

a. With $K_{eff} \geq 1.0$, operation below P-7 may proceed provided at least two reactor coolant loops and associated pumps are in operation.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

URVEILLANCE REQUIREMENTS

4.4.1.1.1 With one reactor coolant loop and associated pump not in operation, at least once per 7 days determine that:

a. The applicable reactor trip system channels specified in the ACTION statements above have been placed in their tripped conditions and,

b. The P-8 interlock setpoint is within the following limits if the P-8 interlock was reset for 2 loop operation:

1. $\leq$ 71% of RATED THERMAL POWER when the reactor coolant stop valves in the nonoperating loop are closed, or

2. $\leq$ 66% of RATED THERMAL POWER when the reactor coolant stop valves in the nonoperating loop are open.

4.4.1.1.2 The power to each of the reactor coolant system loop stop valves shall be verified to be removed at least once per 31 days during operation in MODES 1 or 2.

HOT STANDBY

LIMITING CONDITION FOR OPERATION

3.4.1.2 a. At least two of the reactor coolant loops listed below shall be OPERABLE:

1. Reactor Coolant Loop (A) and its associated steam generator and reactor coolant pump,

2. Reactor Coolant Loop (B) and its associated steam generator and reactor coolant pump,

3. Reactor Coolant Loop (C) and its associated steam generator and reactor coolant pump.

b. At least one of the above coolant loops shall be in operation.*

APPLICABILITY: MODE 3

ACTION:

a. With less than the above required reactor coolant loops OPERABLE, restore the required loops to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.

b. With no reactor coolant loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required coolant loop to operation.

SURVEILLANCE REQUIREMENTS

4.4.1.2.1 At least one of the above required reactor coolant pumps, if not in operation, shall be determined to be OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.2.2 At least one cooling loop shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

* All reactor coolant pumps may be de-energized for up to 1 hour provided (1) no operations are permitted that would cause dilution of the reactor coolant system boron concentration and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

DESIRED WORDING

LIMITING CONDITION FOR OPERATION

3.4.1.3 a. At least two of the coolant loops listed below shall be OPERABLE:

1. Reactor Coolant Loop (A) and its associated steam generator and reactor coolant pump,*

2. Reactor Coolant Loop (B) and its associated steam generator and reactor coolant pump,*

3. Reactor Coolant Loop (C) and its associated steam generator and reactor coolant pump.*

4. Residual Heat Removal Pump (A) and a heat exchanger,**

5. Residual Heat Removal Pump (B) and a second heat exchanger.**

b. At least one of the above coolant loops shall be in operation.***

APPLICABILITY: MODES 4 and 5

ACTION:

a. With less than the above required loops OPERABLE, immediately initiate corrective action to return the required loops to OPERABLE status as soon as possible; be in COLD SHUTDOWN within 20 hours.

b. With no coolant loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant system and immediately initiate corrective action to return the required coolant loop to operation.

* A reactor coolant pump shall not be started with one or more of the RCS cold leg temperatures less than or equal to 275°F unless: 1) the pressurizer water volume is less than 1120 cubic feet or 2) the secondary water temperature of each steam generator is less than 50°F above each of the RCS cold leg temperatures.

** The normal or emergency power source may be inoperable in MODE 5.

*** All reactor coolant pumps and Residual Heat Removal pumps may be de-energized for up to 1 hour provided: 1) no operations are permitted that would cause dilution of the reactor coolant system boron concentration and 2) core outlet temperature is maintained at least 10°F below saturation temperature.

SURVEILLANCE REQUIREMENTS

4.4.1.3.1 The required residual heat removal loop(s) shall be determined OPERABLE per Specification 4.0.5, and by verifying that each residual heat removal pump develops a differential pressure of ≥ 112 psid on recirculation flow.

4.4.1.3.2 The required reactor coolant pump(s), if not in operation, shall be determined to be OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.3.3 The required steam generator(s) shall be determined OPERABLE by verifying secondary side level equivalent to 12% narrow range at least once per 12 hours.

4.4.1.3.4 At least one coolant loop shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

ISOLATED LOOP

LIMITING CONDITION FOR OPERATION

3.4.1.4 The boron concentration of an isolated loop shall be maintained greater than or equal to the boron concentration of the operating loops, except when the loop is drained for maintenance.

APPLICABILITY: MODES 1, 2, 3, 4 and 5

ACTION:

With the requirements of the above specification not satisfied, do not open the isolated loop's stop valves; either increase the boron concentration of the isolated loop to within the limits within 4 hours or be in at least HOT STANDBY within the next 6 hours with the unisolated portion of the RCS borated to a SHUTDOWN MARGIN equivalent to at least 1% Δk/k at 200°F.

SURVEILLANCE REQUIREMENTS

4.4.1.2 The boron concentration of an isolated loop shall be determined to be greater than or equal to the boron concentration of the operating loops at least once per 24 hours and within 30 minutes prior to opening either the hot leg or cold leg stop valves of an isolated loop.

ISOLATED LOOP STARTUP

LIMITING CONDITION FOR OPERATION

3.4.1.3 A reactor coolant loop shall remain isolated until:

a. The isolated loop has been operating on a recirculation flow of ≥ 125 gpm for at least 90 minutes and the temperature at the cold leg of the isolated loop is within 20°F of the highest cold leg temperature of the operating loops.

b. The reactor is subcritical by at least 1 percent Δk/k.

APPLICABILITY: ALL MODES.

ACTION:

With the requirements of the above specification not satisfied, suspend startup of the isolated loop.

SURVEILLANCE REQUIREMENTS

4.4.1.3.1 The isolated loop cold leg temperature shall be determined to be within 20°F of the highest cold leg temperature of the operating loops within 30 minutes prior to opening the cold leg stop valve.

4.4.1.3.2 The reactor shall be determined to be subcritical by at least 1 percent Δk/k within 30 minutes prior to opening the cold leg stop valve.

3/4.7.10 RESIDUAL HEAT REMOVAL SYSTEM - $T_{avg} \geq 350°F$

This specification deleted.

3/4.7.11 RESIDUAL HEAT REMOVAL SYSTEM - T_{avg} < 350°F

This specification deleted.

3/4 9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

LIMITING CONDITION FOR OPERATION

3.9.8.1 At least one residual heat removal (RHR) loop shall be in operation.

APPLICABILITY: MODE 6

ACTION:

a. With less than one residual heat removal loop in operation, except as provided in b below, suspend all operations involving an increase in the reactor decay heat load or a reduction in boron concentration of the Reactor Coolant System. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

b. The residual heat removal loop may be removed from operation for up to 1 hour per 8 hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel (hot) legs.

c. The residual heat removal loop may be removed from operation for up to 4 hours per 8 hour period during the performance of Ultrasonic In-service Inspection inside the reactor vessel nozzles provided there is at least 23 feet of water above the top of the reactor vessel flange.

d. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.8.1 At least one residual heat removal loop shall be verified to be in operation and circulating reactor coolant at a flow rate of ≥ 3000 gpm at least once per 4 hours when making boron dilution changes and ≥ 1000 gpm for decay heat removal when the Reactor Coolant System is in the drained down condition within the loops.

DESIRED WORDING

REFUELING CONDITION FOR OPERATION

LOW WATER LEVEL

LIMITING CONDITION FOR OPERATION

3.9.8.2 Two Residual Heat Removal (RHR) loops shall be OPERABLE.*

APPLICABILITY: MODE 6 when the water level above the top of the reactor pressure vessel flange is less than 23 feet.

ACTION:

a. With less than the required RHR loops OPERABLE, immediately initiate corrective action to return the required RHR loops to OPERABLE status as soon as possible.

b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.8.2 The required Residual Heat Removal loops shall be determined OPERABLE by verifying flow ≥ 1000 gpm.

*The normal or emergency power source may be inoperable for each RHR loop.

DESIRED WORDING

3/4 9.10 WATER LEVEL - REACTOR VESSEL

LIMITING CONDITION FOR OPERATION

3.9.10 At least 23 feet of water shall be maintained over the top of the reactor pressure vessel flange.

APPLICABILITY: During movement of fuel assemblies or control rods within the reactor pressure vessel while in MODE 6.

ACTION:

With the requirements of the above specification not satisfied, suspend all operations involving movement of fuel assemblies or control rods within the pressure vessel. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.10 The water level shall be determined to be at least its minimum required depth within 2 hours prior to the start of and at least once per 24 hours thereafter during movement of fuel assemblies or control rods.

DESIRED WORDING

3/4.4.1 REACTOR COOLANT LOOPS

The plant is designed to operate with all reactor coolant loops in operation and maintain DNBR above 1.30 during all normal operations and anticipated transients. In Modes 1 and 2, with one reactor coolant loop not in operation, THERMAL POWER is restricted to ≤ 31 percent of RATED THERMAL POWER until the Overtemperature ΔT trip is reset. Either action ensures that the DNBR will be maintained above 1.30. A loss of flow in two loops will cause a reactor trip if operating above P-7 (11 percent of RATED THERMAL POWER) while a loss of flow in one loop will cause a reactor trip if operating above P-8 (31 percent of RATED THERMAL POWER).

In MODE 3, a single reactor coolant loop provides sufficient heat removal capability for removing decay heat; however, single failure considerations require that two loops be OPERABLE.

In MODES 4 and 5, a single reactor coolant loop or RHR subsystem provides sufficient heat removal capability for removing decay heat; but single failure considerations require that at least two loops be OPERABLE. Thus, if the reactor coolant loops are not OPERABLE, this specification requires two RHR loops to be OPERABLE.

The operation of one Reactor Coolant Pump or one RHR pump provides adequate flow to ensure mixing, prevent stratification and produce gradual reactivity changes during boron concentration reductions in the Reactor Coolant System. The reactivity change rate associated with boron reduction will, therefore, be within the capability of operator recognition and control.

The restrictions on starting a Reactor Coolant Pump with one or more RCS cold legs less than or equal to 275°F are provided to prevent RCS pressure transients, caused by energy additions from the secondary system, which could exceed the limits of Appendix G to 10 CFR Part 50. The RCS will be protected against overpressure transients and will not exceed the limits

3/4.4.1 REACTOR COOLANT LOOPS (continued)

of Appendix G by either (1) restricting the water volume in the pressurizer and thereby providing a volume for the primary coolant to expand into or (2) by restricting starting of the RCPs to when the secondary water temperature of each steam generator is less than 50 °F above each of the RCS cold leg temperatures.

The requirement to maintain the boron concentration of an isolated loop greater than or equal to the boron concentration of the operating loops ensures that no reactivity addition to the core could occur during startup of an isolated loop. Verification of the boron concentration in an idle loop immediately prior to opening the stop valves provides a reassurance of the adequacy of the boron concentration in the isolated loop. Operating the isolated loop on recirculating flow for at least 90 minutes prior to opening its stop valves ensures adequate mixing of the coolant in this loop and prevents any reactivity effects due to boron concentration stratifications.

Startup of an idle loop will inject cool water from the loop into the core. The reactivity transient resulting from this cool water injection is minimized by delays isolated loop startup until its temperature is within 20°F of the operating loops. Making the reactor subcritical prior to loop startup prevents any power spike which could result from this cool water induced reactivity transient.

3/4.4.2 and 3/4.4.3 SAFETY VALVES

The pressurizer code safety valves operate to prevent the RCS from being pressurized above its Safety Limit of 2735 psig. Each safety valve is designed to relieve 345,000 lbs. per hour of saturated steam at the valve set point. The relief capacity of a single safety valve is adequate to

3/4.7.7 CONTROL ROOM EMERGENCY HABITABILITY SYSTEM

The OPERABILITY of the control room ventilation system ensures that 1) the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system and 2) the control room will remain habitable for operations personnel during and following all credible accident conditions. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rem or less whole body, or its equivalent. This limitation is consisten with the requirements of General Design Criteria 10 of Appendix "A", 10 CFR 50.

3/4.7.8 SUPPLEMENTAL LEAK COLLECTION AND RELEASE SYSTEM (SLCRS)

The OPERABILITY of the SLCRS ensures that radioactive materials leaking from equipment following a LOCA are filtered prior to reaching the environment. The operation of this system and the resultant effect on offsite dosage calculations was assumed in the accident analyses.

3/4.7.9 SEALED SOURCE CONTAMINATION

The limitations on sealed source removable contamination ensure that the total body or individual organ irradiation does not exceed allowable limits in the event of ingestion or inhalation of the source material. The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39(c) limits for plutonium. Leakage of sources excluded from the requirements of this specification represent less than one maximum permissible body burden for total body irradiation if the source material is inhaled or ingested.

3/4.7.10 and 3/4.7.11 RESIDUAL HEAT REMOVAL SYSTEM (RHR)

Deleted

DESIRED WORDING

3/4.9.5 COMMUNICATIONS

The requirements for communications capability ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity conditions during CORE ALTERATIONS.

3/4.9.6 MANIPULATOR CRANE OPERABILITY

The OPERABILITY requirements for the manipulator cranes ensure that: 1) manipulator cranes will be used for movement of control rods and fuel assemblies; 2) each crane has sufficient load capacity to lift a control rod or fuel assembly; and 3) the core internals and pressure vessel are protected from excessive lifting force in the event they are inadvertently engaged during lifting operations.

3/4.9.7 CRANE TRAVEL - SPENT FUEL STORAGE BUILDING

The restriction on movement of loads in excess of the normal weight of a fuel assembly over other fuel assemblies ensures that no more than the contents of one fuel assembly will be ruptured in the event of a fuel handling accident. This assumption is consistent with the activity release assumed in the accident analyses.

3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

The requirement that at least one residual heat removal (RHR) loop be in operation ensures that 1) sufficient cooling capacity is available to remove decay heat and maintain the water in the reactor pressure vessel below 140°F as required during the REFUELING MODE, and 2) sufficient coolant circulation is maintained throughout the reactor core to minimize the effect of a boron dilution incident and prevent boron stratification.

The requirement to have two RHR loops OPERABLE when there is less than 23 feet of water above the reactor pressure vessel flange ensures that a single failure of the operating RHR loop will not result in a complete loss of residual heat removal capability. With the reactor vessel head removed and 23 feet of water above the reactor pressure vessel flange, a large heat sink is available for core cooling. Thus, in the event of a failure of the operating RHR loop, adequate time is provided to initiate emergency procedures to cool the core.

3/4.9.9 CONTAINMENT PURGE AND EXHAUST ISOLATION SYSTEM

The OPERABILITY of this system ensures that the containment vent and purge penetrations will be automatically isolated upon detection of high radiation levels within the containment. The integrity of the containment penetrations of this system is required to restrict the release of radioactive material from the containment atmosphere to acceptable levels which are less than those listed in 10 CFR 100. Applicability in MODE 5, although not an NRC safety requirement, will provide additional protection against small releases of radioactive material from the containment during maintenance activities.