August 26, 1998

Mr. J. E. Cross
President-Generation Group
Duquesne Light Company
Post Office Box 4
Shippingport, PA 15077

SUBJECT: BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2 (TAC NOS. MA0611 AND MA0612)

Dear Mr. Cross:

The Commission has issued the enclosed Amendment No. 217 to Facility Operating License No. DPR-66 and Amendment No. 94 to Facility Operating License No. NPF-73 for the Beaver Valley Power Station, Unit Nos. 1 and 2 (BVPS-1 and BVPS-2). These amendments consist of changes to the Technical Specifications (TSs) in response to your application dated December 19, 1997, as supplemented June 16, July 9, and July 15, 1998, which submitted License Change Request Nos. 218 and 85.

These amendments revise the requirements for the source range neutron flux channels in Modes 2 (Below P-6), 3, 4, and 5 to incorporate the guidance provided in NUREG-1431, the NRC's improved Standard Technical Specifications with some modifications to address plant-specific design features. This change allows (1) the use of alternate detectors provided the required functions are provided, and (2) plant cooldown with inoperable detectors provided the shutdown margin accounts for the temperature change. This change also modifies the BVPS-2 TS Table 3.3-1 Channels To Trip and Minimum Channels Operable requirements to 0 and 1, respectively. This portion of the amendment makes these BVPS-2 requirements consistent with the current BVPS-1 requirements. For both BVPS-1 and BVPS-2, TS Table 4.3-1 is modified to include a notation exempting the alternate source range detectors from surveillance testing until they are required for operability.

A copy of our safety evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

/S/
Donald S. Brinkman, Senior Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-334 and 50-412

Enclosures: 1. Amendment No. 217 to DPR-66
2. Amendment No. 94 to NPF-73
3. Safety Evaluation

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 26, 1998

Mr. J. E. Cross
President-Generation Group
Duquesne Light Company
Post Office Box 4
Shippingport, PA 15077

SUBJECT: BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2 (TAC NOS. MA0611 AND MA0612)

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These amendments revise the requirements for the source range neutron flux channels in Modes 2 (Below P-6), 3, 4, and 5 to incorporate the guidance provided in NUREG-1431, the NRC's improved Standard Technical Specifications with some modifications to address plant-specific design features. This change allows (1) the use of alternate detectors provided the required functions are provided, and (2) plant cooldown with inoperable detectors provided the shutdown margin accounts for the temperature change. This change also modifies the BVPS-2 TS Table 3.3-1 Channels To Trip and Minimum Channels Operable requirements to 0 and 1, respectively. This portion of the amendment makes these BVPS-2 requirements consistent with the current BVPS-1 requirements. For both BVPS-1 and BVPS-2, TS Table 4.3-1 is modified to include a notation exempting the alternate source range detectors from surveillance testing until they are required for operability.

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Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-334 and 50-412

Enclosures: 1. Amendment No. 217 to DPR-66
2. Amendment No. 94 to NPF-73
3. Safety Evaluation

cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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. 217
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 December 19, 1997, as supplemented June 16, July 9, and July 15, 1998, complies with the standards and 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.

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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.217, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance, to be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert A. Capra

Robert A. Capra, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: August 26, 1998

ATTACHMENT TO LICENSE AMENDMENT NO. 217

FACILITY OPERATING LICENSE NO. DPR-66

DOCKET NO. 50-334

Replace the following pages of 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 3-2	3/4 3-2
3/4 3-6	3/4 3-6
3/4 3-7	3/4 3-7
—	3/4 3-8
3/4 3-11	3/4 3-11
3/4 3-13	3/4 3-13
B 3/4 3-1c	B 3/4 3-1c
—	B 3/4 3-1d
—	B 3/4 3-1e
—	B 3/4 3-1f
—	B 3/4 3-1g
—	B 3/4 3-1h

TABLE 3.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1. Manual Reactor Trip	2	1	2	1, 2, 3(3), 4(3) and 5(3)	12
2. Power Range, Neutron Flux					
a. High Setpoint	4	2	3	1, 2	2
b. Low Setpoint	4	2	3	1(1), 2	2
3. Power Range, Neutron Flux High Positive Rate	4	2	3	1, 2	2
4. Power Range, Neutron Flux High Negative Rate	4	2	3	1, 2	2
5. Intermediate Range, Neutron Flux	2	1	2	1(1), 2, 3(3), 4(3) and 5(3)	3
6. Source Range, Neutron Flux					
a. With Rod Withdrawal Capability	2	1	2	2(2), 3(3), 4(3) and 5(3)	4
b. With All Rods Fully Inserted and Without Rod Withdrawal Capability	2	0	1	3, 4, and 5	5
7. Overtemperature ΔT	3	2	2	1, 2	7
8. Overpower ΔT	3	2	2	1, 2	7
9. Pressurizer Pressure-Low (Above P-7)	3	2	2	1, 2	7

TABLE 3.3-1 (Continued)

ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below P-6, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 setpoint.

b. Above P-6 but below 5 percent of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5 percent of RATED THERMAL POWER.

c. Above 5 percent of RATED THERMAL POWER, POWER OPERATION may continue.

ACTION 4 - a. MODE 2 (Below P-6); with one source range neutron flux channel inoperable, immediately suspend operations involving positive reactivity additions.

b. MODE 3, 4 and 5; with one source range neutron flux channel inoperable, restore the inoperable channel to OPERABLE status within 48 hours or open the reactor trip breakers within the next hour.

c. MODE 2 (Below P-6), 3, 4 and 5; with two source range neutron flux channels inoperable, immediately open the reactor trip breakers.

ACTION 5 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement:

a. Suspend operations involving positive reactivity additions,(7) and

b. Close unborated water source isolation valve(s) (1CH-90) or (1CH-91 and 1CH-93) within 1 hour, and

c. Perform Surveillance Requirement 4.1.1.1.1 or 4.1.1.2, as applicable, within the next hour and at least once per 12 hours thereafter.

ACTION 6 - Not Applicable.

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(7) Plant cooldown is allowable provided the temperature change is accounted for in the calculated shutdown margin.

TABLE 3.3-1 (Continued)

ACTION 7 - With the number of OPERABLE channels[6] one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours, and

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1.1.

ACTION 8 - With the number of OPERABLE channels one less than the Total Number of Channels and with the THERMAL POWER level above P-7, place the inoperable channel in the tripped condition within 6 hours; operation may continue until performance of the next required CHANNEL FUNCTIONAL TEST.

ACTION 9 - Not applicable.

ACTION 10 - Not applicable.

ACTION 11 - With less than the Minimum Number of Channels OPERABLE, operation may continue provided the inoperable channel is placed in the tripped condition within 6 hours.

ACTION 12 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours and/or open the reactor trip breakers.

ACTION 39 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or open the reactor trip breakers within the next hour.

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(6) An OPERABLE hot leg channel consists of: 1) three RTDs per hot leg, or 2) two RTDs per hot leg with the failed RTD disconnected and the required bias applied.

TABLE 3.3-1 (Continued)

ACTION 40 -a. With one of the diverse trip features (undervoltage or shunt trip attachment) of a reactor trip breaker inoperable, restore the diverse trip feature to OPERABLE status within 48 hours or declare the breaker inoperable and be in HOT STANDBY within the next 6 hours. Neither breaker shall be bypassed while one of the diverse trip features is inoperable except for the time required for performing maintenance to restore the breaker to OPERABLE status.

b. With one reactor trip breaker inoperable as a result of something other than an inoperable diverse trip feature, be in at least HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1, provided the other channel is OPERABLE.

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

	Functional Unit	Channel Check	Channel Calibration	Channel Functional Test	Modes in Which Surveillance Required
1.	Manual Reactor Trip	N.A.	N.A.	S/U(1), R(10)	N.A.
2.	Power Range, Neutron Flux				
	a. High Setpoint	S	D(2), M(3) and Q(6)	Q	1, 2
	b. Low Setpoint	S	R(6)	S/U(1)	2
3.	Power Range, Neutron Flux, High Positive Rate	N.A.	R(6)	Q	1, 2
4.	Power Range, Neutron Flux, High Negative Rate	N.A.	R(6)	Q	1, 2
5.	Intermediate Range, Neutron Flux	S	R(6)	S/U(1)	1, 2, 3(14), 4(14), 5(14)
6.	Source Range(15), Neutron Flux				
	a. With Rod Withdrawal Capability	S	R(6)	Q(8)	2, 3(14), 4(14) and 5(14)
	b. With All Rods Fully Inserted and Without Rod Withdrawal Capability	S	R(6)	Q(8)	3, 4 and 5
7.	Overtemperature ΔT	S	R(6)	Q	1, 2
8.	Overpower ΔT	S	R	Q	1, 2
9.	Pressurizer Pressure-Low	S	R	Q	1, 2
10.	Pressurizer Pressure-High	S	R	Q	1, 2
11.	Pressurizer Water Level-High	S	R	Q	1, 2

TABLE 4.3-1 (Continued)

NOTATION

(1) - If not performed in previous 31 days.

(2) - Heat balance only, above 15 percent of RATED THERMAL POWER.

(3) - At least once every 31 Effective Full Power Days (EFPD) compare incore to excore axial imbalance above 15 percent of RATED THERMAL POWER. Recalibrate if absolute difference greater than or equal to 3 percent.

(4) - (Not Used)

(5) - Each train tested every other month.

(6) - Neutron detectors may be excluded from CHANNEL CALIBRATION.

(7) - Below P-10.

(8) - Below P-6, not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 12 hours after entry into MODE 3.

(9) - (Not Used)

(10) - The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip circuits for the Manual Reactor Trip Function. The test shall also verify the OPERABILITY of the Bypass Breaker trip circuit(s).

(11) - The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip attachments of the Reactor Trip Breakers.

(12) - Local manual shunt trip prior to placing breaker in service.

(13) - Automatic undervoltage trip.

(14) - With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.

(15) - Surveillance Requirements need not be performed on alternate detectors until connected and required for OPERABILITY.

3/4.3.1 and 3/4.3.2 PROTECTIVE AND ENGINEERED SAFETY FEATURES (ESF) INSTRUMENTATION (Continued)

The instrumentation functions that receive input from neutron detectors are modified by a note stating that neutron detectors are excluded from the CHANNEL CALIBRATION. The CHANNEL CALIBRATION for the power range neutron detectors consists of a normalization of the detectors based on a power calorimetric and flux map performed above 15% RATED THERMAL POWER. The power range neutron detector CHANNEL CALIBRATION is performed every 18 months but is not required for entry into MODE 2 or 1 on unit startup because the unit must be in at least MODE 1 to perform the test. The neutron detector CHANNEL CALIBRATION for the source range and intermediate range detectors consists of obtaining detector characteristics and performing an engineering evaluation of those characteristics. The intermediate range neutron detector CHANNEL CALIBRATION is performed every 18 months but is not required for entry into MODE 2 on unit startup because the unit must be in at least MODE 2 to perform the test. The source range neutron detector CHANNEL CALIBRATION is performed every 18 months but is not required for entry into MODE 2 or 3 on unit shutdown because the unit must be in at least MODE 3 to perform the test. The P-6 permissive neutron detector CHANNEL CALIBRATION is performed in conjunction with the intermediate range neutron detectors. The overtemperature ΔT, P-8, P-9 and P-10 permissive neutron detector CHANNEL CALIBRATIONS are performed in conjunction with the power range neutron detectors.

Source Range Neutron Flux

The limiting condition for operation (LCO) requirement for the source range neutron flux trip function ensures that protection is provided against an uncontrolled rod cluster control assembly (RCCA) bank rod withdrawal accident from a subcritical condition during startup with the reactor trip breakers (RTBs) closed. This trip function provides redundant protection to the Power Range Neutron Flux-Low Setpoint and Intermediate Range Neutron Flux trip functions (See UFSAR Section 14.1.1 and Specification 2.2.1 Bases). In MODES 3, 4, and 5, with the RTBs closed, administrative controls also prevent the uncontrolled withdrawal of rods. The nuclear instrumentation system (NIS) source range detectors are located external to the reactor vessel and measure neutrons leaking from the core. The NIS source range detectors do not provide any inputs to control systems. The source range trip is the only reactor trip system (RTS) automatic protection function required in MODES 3, 4, and 5. Therefore, the functional capability at the specified trip setpoint is assumed to be available.

3/4.3.1 and 3/4.3.2 PROTECTIVE AND ENGINEERED SAFETY FEATURES (ESF) INSTRUMENTATION (Continued)

The LCO requires two channels of source range neutron flux to be OPERABLE when the RTBs are closed. Two OPERABLE channels are sufficient to ensure no single random failure will disable this trip function. The LCO also requires one channel of the source range neutron flux to be OPERABLE in MODE 3, 4, or 5 with RTBs open. In this case, the source range function is to provide control room indication and the high flux at shutdown alarm. The outputs of the function to RTS logic are not required OPERABLE when the RTBs are open.

The source range neutron flux function provides protection for control rod withdrawal from subcritical, boron dilution and control rod ejection events. The function also provides visual neutron flux indication in the control room.

In MODE 2 when below the P-6 setpoint during a reactor startup, the source range neutron flux trip must be OPERABLE. Above the P-6 setpoint, the Intermediate Range Neutron Flux trip and Power Range Neutron Flux-Low Setpoint trip will provide core protection for reactivity accidents. Above the P-6 setpoint, the NIS source range detectors are de-energized and not functional.

In MODE 3, 4, or 5 with the reactor shut down and with the control rod drive (CRD) system capable of rod withdrawal, the source range neutron flux trip function must also be OPERABLE. If the CRD system is not capable of rod withdrawal, the source range detectors are not required to trip the reactor. However, their monitoring function must be OPERABLE to monitor core neutron levels and provide indication of reactivity changes that may occur as a result of events like a boron dilution.

Suitable detectors used in place of primary source range neutron flux monitors are recognized as alternate detectors. Alternate detectors may be used in place of primary source range neutron flux monitors as long as the required neutron flux indication, high flux at shutdown alarm, and source range high neutron flux trip functions are provided.

3/4.3.1 and 3/4.3.2 PROTECTIVE AND ENGINEERED SAFETY FEATURES (ESF) INSTRUMENTATION (Continued)

ACTION 4

Item (a) applies to one inoperable source range neutron flux trip channel when in MODE 2, below the P-6 setpoint, and performing a reactor startup. With the unit in this condition, below P-6, the NIS source range performs the monitoring and protection functions. With one of the two channels inoperable, operations involving positive reactivity additions shall be suspended immediately.

This will preclude any power escalation. With only one source range channel OPERABLE, core protection is severely reduced and any actions that add positive reactivity to the core must be suspended immediately.

Item (b) applies to one inoperable source range neutron flux trip channel when in MODE 3, 4, or 5, with the RTBs closed and the CRD system capable of rod withdrawal. With the unit in this condition, the NIS source range performs the monitoring and protection functions. With one of the source range channels inoperable, 48 hours is allowed to restore it to OPERABLE status. If the channel cannot be returned to an OPERABLE status, 1 additional hour is allowed to open the RTBs. Once the RTBs are open, rod withdrawal is not possible and the unit enters ACTION 5. The allowance of 48 hours to restore the channel to OPERABLE status, and the additional hour to open the RTBs, are justified in WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.

Item (c) applies to two inoperable source range neutron flux trip channels when in MODE 2, below the P-6 setpoint, and performing a reactor startup, or in MODE 3, 4, or 5 with the RTBs closed and the CRD system capable of rod withdrawal. With the unit in this condition, below P-6, the NIS source range performs the monitoring and protection functions. With both source range channels inoperable, the RTBs must be opened immediately. With the RTBs open, rod withdrawal is not possible and the unit enters ACTION 5.

3/4.3.1 and 3/4.3.2 PROTECTIVE AND ENGINEERED SAFETY FEATURES (ESF) INSTRUMENTATION (Continued)

ACTION 5

This ACTION applies when the required number of OPERABLE source range neutron flux channels is not met in MODE 3, 4, or 5 with the RTBs open. With the unit in this condition, the NIS source range performs the monitoring function. With less than the required number of source range channels OPERABLE, operations involving positive reactivity additions shall be suspended immediately. This will preclude any power escalation. However, a note applicable to this ACTION allows plant cooldown as long as the shutdown margin is adequate to account for the positive reactivity addition resulting from the temperature change. This ensures the core is controlled and the shutdown margin requirements are satisfied for all applicable events. In addition to suspension of positive reactivity additions, the valve(s) that controls the addition of unborated water to the RCS must be closed within 1 hour. The isolation of unborated water sources will preclude a boron dilution accident.

Also, the shutdown margin (SDM) must be verified within 1 hour and once every 12 hours thereafter as per SR 4.1.1.1.1 or 4.1.1.2, SDM verification. With no source range channels OPERABLE, core protection is severely reduced. Verifying the SDM within 1 hour allows sufficient time to perform the calculations and determine that the SDM requirements are met. The SDM must also be verified once per 12 hours thereafter to ensure that the core reactivity has not changed. Item (a) precludes any positive reactivity additions; therefore, core reactivity should not be increasing, and a 12 hour frequency is adequate. This does not include xenon decay which is accounted for in the shutdown margin surveillance. The completion times of within 1 hour and once per 12 hours are based on operating experience in performing the ACTIONS and the knowledge that unit conditions will change slowly.

SOURCE RANGE NEUTRON FLUX

SURVEILLANCE REQUIREMENTS (SR)

CHANNEL CHECK

The alternate source range detectors are modified by a note to indicate they are not subject to the source range detector surveillance requirements until they have been connected to the applicable circuits and are required to be OPERABLE. This complies with the testing requirements for components that are required to be OPERABLE.

3/4.3.1 and 3/4.3.2 PROTECTIVE AND ENGINEERED SAFETY FEATURES (ESF) INSTRUMENTATION (Continued)

Performance of the CHANNEL CHECK once every 12 hours ensures that gross failure of instrumentation has not occurred. A CHANNEL CHECK is a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK for a single channel involves a qualitative assessment of the channel indication to verify the channel is operating in the approximate range for the expected plant conditions. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the unit staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the match criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

The frequency is based on operating experience that demonstrates channel failure is rare. Thus, performance of the CHANNEL CHECK ensures that undetected overt channel failure is limited to 12 hours. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.

When the control rods are fully inserted and are not capable of withdrawal, inadvertent control rod withdrawal is not a concern and one source range detector can adequately monitor the core.

CHANNEL FUNCTIONAL TEST

The alternate source range detectors are modified by a note to indicate they are not subject to the source range detector surveillance requirements until they have been connected to the applicable circuits and are required to be OPERABLE. This complies with the testing requirements for components that are required to be OPERABLE.

3/4.3.1 and 3/4.3.2 PROTECTIVE AND ENGINEERED SAFETY FEATURES (ESF) INSTRUMENTATION (Continued)

A CHANNEL FUNCTIONAL TEST is performed on each required channel every 92 days to ensure the entire channel will perform the intended function. Setpoints must be within the Allowable Values. The frequency of 92 days is justified in WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.

This surveillance is modified by a Note that specifies testing when below P-6 and is clarified to address the transition from MODE 2 to MODE 3. A transition into MODE 3 with the reactor trip breakers closed is often made for a short period of time during plant shutdown. During a normal shutdown, the reactor trip breakers are opened shortly after entering MODE 3. The transition time in MODE 3 from when the reactor trip breakers are closed to when they are opened is less than the time required to perform the CHANNEL FUNCTIONAL TEST prior to entering MODE 3. Therefore, an allowance to enter MODE 3 without first performing the source range CHANNEL FUNCTIONAL TEST is warranted.

CHANNEL CALIBRATION

The alternate source range detectors are modified by a note to indicate they are not subject to the source range detector surveillance requirements until they have been connected to the applicable circuits and are required to be OPERABLE. This complies with the testing requirements for components that are required to be OPERABLE.

A CHANNEL CALIBRATION is performed every 18 months, or approximately at every refueling. The CHANNEL CALIBRATION for the source range neutron detectors consists of obtaining the detector plateau and preamp discriminator curves, evaluating those curves, and establishing detector operating conditions as directed by the detector manufacturer. The 18 month frequency is based on the need to perform this surveillance under the conditions that apply during a plant outage since performance at power is not possible. The protection and monitoring functions are also calibrated at an 18 month frequency as is normal for reactor protection instrument channels. Operating experience has shown these components usually pass the surveillance when performed on the 18 month frequency.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

DUQUESNE LIGHT COMPANY

OHIO EDISON COMPANY

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

THE TOLEDO EDISON COMPANY

DOCKET NO. 50-412

BEAVER VALLEY POWER STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 94
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 Decemer 19, 1997, as supplemented June 16, July 9, and July 15, 1998, complies with the standards and 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. 94 , and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto are hereby incorporated in the license. DLCO shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance, to be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert A. Capra

Robert A. Capra, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: August 26, 1998

ATTACHMENT TO LICENSE AMENDMENT NO. 94

FACILITY OPERATING LICENSE NO. NPF-73

DOCKET NO. 50-412

Replace the following pages of 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
x	x
3/4 3-2	3/4 3-2
3/4 3-6	3/4 3-6
3/4 3-7	3/4 3-7
—	3/4 3-8
3/4 3-10	3/4 3-10
3/4 3-13	3/4 3-13
B 3/4 3-5	B 3/4 3-5
B 3/4 3-6	B 3/4 3-6
B 3/4 3-7	B 3/4 3-7
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—	B 3/4 3-9
—	B 3/4 3-10
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TABLE 3.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1. Manual Reactor Trip	2	1	2	1, 2, 3(3), 4(3) and 5(3)	12
2. Power Range, Neutron Flux					
a. High Setpoint	4	2	3	1, 2	2
b. Low Setpoint	4	2	3	1(1), 2	2
3. Power Range, Neutron Flux High Positive Rate	4	2	3	1, 2	2
4. Power Range, Neutron Flux High Negative Rate	4	2	3	1, 2	2
5. Intermediate Range, Neutron Flux	2	1	2	1(1), 2, 3(3), 4(3) and 5(3)	3
6. Source Range(8), Neutron Flux					
a. With Rod Withdrawal Capability	2	1	2	2(2), 3(3), 4(3) and 5(3)	4
b. With All Rods Fully Inserted and Without Rod Withdrawal Capability	2	0	1	3, 4, and 5	5
7. Overtemperature ΔT	3	2	2	1, 2	7
8. Overpower ΔT	3	2	2	1, 2	7
9. Pressurizer Pressure-Low (Above P-7)	3	2	2	1, 2	7
10. Pressurizer Pressure-High	3	2	2	1, 2	7

(8) Alternate detectors may only be used for monitoring purposes Without Rod Withdrawal Capability until detector functions are modified to permit equivalent alarm and trip functions.

TABLE 3.3-1 (Continued)

ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below P-6, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 setpoint.

b. Above P-6 but below 5 percent of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5 percent of RATED THERMAL POWER.

c. Above 5 percent of RATED THERMAL POWER, POWER OPERATION may continue.

ACTION 4 - a. MODE 2 (Below P-6); with one source range neutron flux channel inoperable, immediately suspend operations involving positive reactivity additions.

b. MODE 3, 4 and 5; with one source range neutron flux channel inoperable, restore the inoperable channel to OPERABLE status within 48 hours or open the reactor trip breakers within the next hour.

c. MODE 2 (Below P-6), 3, 4 and 5; with two source range neutron flux channels inoperable, immediately open the reactor trip breakers.

ACTION 5 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement:

a. Suspend operations involving positive reactivity additions,(7) and

b. Close unborated water source isolation valves (2CHS-91, 2CHS-96 and 2CHS-138) or (2CHS-37 and 2CHS-828) within 1 hour, and

c. Perform Surveillance Requirement 4.1.1.1.1 or 4.1.1.2, as applicable, within the next hour and at least once per 12 hours thereafter.

ACTION 6 - This Action is not used.

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(7) Plant cooldown is allowable provided the temperature change is accounted for in the calculated shutdown margin.

TABLE 3.3-1 (Continued)

ACTION 7 - With the number of OPERABLE channels[6] one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours, and

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1.1.

ACTION 8 - With the number of OPERABLE channels one less than the Total Number of Channels and with the THERMAL POWER level above P-9, place the inoperable channel in the tripped condition within 6 hours; operation may continue until performance of the next required CHANNEL FUNCTIONAL TEST.

ACTION 9 - This Action is not used.

ACTION 10 - This Action is not used.

ACTION 11 - With less than the Minimum Number of Channels OPERABLE, operation may continue provided the inoperable channel is placed in the tripped condition within 6 hours.

ACTION 12 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours and/or open the reactor trip breakers.

ACTION 39 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or open the reactor trip breakers within the next hour.

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(6) An OPERABLE hot leg channel consists of: 1) three RTDs per hot leg, or 2) two RTDs per hot leg with the failed RTD disconnected and the required bias applied.

TABLE 3.3-1 (Continued)

ACTION 40 - a. With one of the diverse trip features (undervoltage or shunt trip attachment) of a reactor trip breaker inoperable, restore the diverse trip feature to OPERABLE status within 48 hours or declare the breaker inoperable and be in HOT STANDBY within the next 6 hours. Neither breaker shall be bypassed while one of the diverse trip features is inoperable except for the time required for performing maintenance to restore the breaker to OPERABLE status.

b. With one reactor trip breaker inoperable as a result of something other than an inoperable diverse trip feature, be in at least HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1, provided the other channel is OPERABLE.

ACTION 44 - With less than the Minimum Number of Channels OPERABLE, within 1 hour determine by observation of the associated permissive annunciator window(s) that the interlock is in its required state for the existing plant condition, or apply Specification 3.0.3.

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Functional Unit	Channel Check	Channel Calibration	Channel Functional Test	Modes in Which Surveillance Required
1. Manual Reactor Trip	N.A.	N.A.	S/U(1), R(10)	1, 2, 3(14), 4(14), 5(14)
2. Power Range, Neutron Flux				
a. High Setpoint	S	D(2), M(3) and Q(6)	Q	1, 2
b. Low Setpoint	S	R(6)	S/U(1)	1(7), 2
3. Power Range, Neutron Flux, High Positive Rate	N.A.	R(6)	Q	1, 2
4. Power Range, Neutron Flux, High Negative Rate	N.A.	R(6)	Q	1, 2
5. Intermediate Range, Neutron Flux	S	R(6)	S/U(1)	1, 2, 3(14), 4(14), 5(14)
6. Source Range(15), Neutron Flux				
a. With Rod Withdrawal Capability	S	R(6)	Q(8)	2, 3(14), 4(14) and 5(14)
b. With All Rods Inserted and Without Rod Withdrawal Capability	S	R(6)	Q(8)	3, 4 and 5
7. Overtemperature ΔT	S	R(6)	Q	1, 2
8. Overpower ΔT	S	R	Q	1, 2
9. Pressurizer Pressure-Low (Above P-7)	S	R	Q	1, 2
10. Pressurizer Pressure-High	S	R	Q	1, 2
11. Pressurizer Water Level-High (Above P-7)	S	R	Q	1, 2

TABLE 4.3-1 (Continued)

TABLE NOTATION

(1) - If not performed in previous 31 days.

(2) - Heat balance only, above 15 percent of RATED THERMAL POWER.

(3) - At least once every 31 Effective Full Power Days (EFPD) compare incore to excore axial imbalance above 15 percent of RATED THERMAL POWER. Recalibrate if absolute difference greater than or equal to 3 percent.

(4) - (Not Used).

(5) - Each train tested every other month on a STAGGERED TEST BASIS.

(6) - Neutron detectors may be excluded from CHANNEL CALIBRATION.

(7) - Below P-10.

(8) - Below P-6, not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 12 hours after entry into MODE 3.

(9) - (Not Used)

(10) - The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip circuits for the Manual Reactor Trip Function. The test shall also verify the OPERABILITY of the Bypass Breaker trip circuit(s).

(11) - The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip attachments of the Reactor Trip Breakers.

(12) - Local manual shunt trip prior to placing breaker in service.

(13) - Automatic undervoltage trip.

(14) - With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.

(15) - Surveillance Requirements need not be performed on alternate detectors until connected and required for OPERABILITY.

3/4.3.1 and 3/4.3.2 REACTOR TRIP SYSTEM AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION (Continued)

shutdown because the unit must be in at least MODE 3 to perform the test. The P-6 permissive neutron detector CHANNEL CALIBRATION is performed in conjunction with the intermediate range neutron detectors. The overtemperature ΔT, P-8, P-9 and P-10 permissive neutron detector CHANNEL CALIBRATIONS are performed in conjunction with the power range neutron detectors.

Source Range Neutron Flux

The limiting condition for operation (LCO) requirement for the source range neutron flux trip function ensures that protection is provided against an uncontrolled rod cluster control assembly (RCCA) bank rod withdrawal accident from a subcritical condition during startup with the reactor trip breakers (RTBs) closed. This trip function provides redundant protection to the Power Range Neutron Flux-Low Setpoint and Intermediate Range Neutron Flux trip functions (see UFSAR Section 15.4.1 and Specification 2.2.1 Bases). In MODES 3, 4, and 5, with the RTBs closed, administrative controls also prevent the uncontrolled withdrawal of rods. The nuclear instrumentation system (NIS) source range detectors are located external to the reactor vessel and measure neutrons leaking from the core. The NIS source range detectors do not provide any inputs to control systems. The source range trip is the only reactor trip system (RTS) automatic protection function required in MODES 3, 4, and 5. Therefore, the functional capability at the specified trip setpoint is assumed to be available.

The LCO requires two channels of source range neutron flux to be OPERABLE when the RTBs are closed. Two OPERABLE channels are sufficient to ensure no single random failure will disable this trip function. The LCO also requires one channel of the source range neutron flux to be OPERABLE in MODE 3, 4, or 5 with RTBs open. In this case, the source range function is to provide control room indication and the high flux at shutdown alarm. The outputs of the function to RTS logic are not required OPERABLE when the RTBs are open.

The source range neutron flux function provides protection for control rod withdrawal from subcritical, boron dilution and control rod ejection events. The function also provides visual neutron flux indication in the control room.

3/4.3.1 and 3/4.3.2 REACTOR TRIP SYSTEM AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION (Continued)

In MODE 2 when below the P-6 setpoint during a reactor startup, the source range neutron flux trip must be OPERABLE. Above the P-6 setpoint, the Intermediate Range Neutron Flux trip and Power Range Neutron Flux-Low Setpoint trip will provide core protection for reactivity accidents. Above the P-6 setpoint, the NIS source range detectors are de-energized and not functional.

In MODE 3, 4, or 5 with the reactor shut down and with the control rod drive (CRD) system capable of rod withdrawal, the source range neutron flux trip function must also be OPERABLE. If the CRD system is not capable of rod withdrawal, the source range detectors are not required to trip the reactor. However, their monitoring function must be OPERABLE to monitor core neutron levels and provide indication of reactivity changes that may occur as a result of events like a boron dilution.

Suitable detectors used in place of primary source range neutron flux monitors are recognized as alternate detectors. Alternate detectors may be used in place of primary source range neutron flux monitors as long as the required neutron flux indication, high flux at shutdown alarm, and source range high neutron flux trip functions are provided.

Note (8) limits the use of alternate detectors to a monitoring function until a plant design change can provide the capability for directly connecting these detectors into the source range circuits so they can provide the required alarm and trip functions.

ACTION 4

Item (a) applies to one inoperable source range neutron flux trip channel when in MODE 2, below the P-6 setpoint, and performing a reactor startup. With the unit in this condition, below P-6, the NIS source range performs the monitoring and protection functions. With one of the two channels inoperable, operations involving positive reactivity additions shall be suspended immediately.

This will preclude any power escalation. With only one source range channel OPERABLE, core protection is severely reduced and any actions that add positive reactivity to the core must be suspended immediately.

3/4.3.1 and 3/4.3.2 REACTOR TRIP SYSTEM AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION (Continued)

Item (b) applies to one inoperable source range neutron flux trip channel when in MODE 3, 4, or 5, with the RTBs closed and the CRD system capable of rod withdrawal. With the unit in this condition, the NIS source range performs the monitoring and protection functions. With one of the source range channels inoperable, 48 hours is allowed to restore it to OPERABLE status. If the channel cannot be returned to an OPERABLE status, 1 additional hour is allowed to open the RTBs. Once the RTBs are open, rod withdrawal is not possible and the unit enters ACTION 5. The allowance of 48 hours to restore the channel to OPERABLE status, and the additional hour to open the RTBs, are justified in WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.

Item (c) applies to two inoperable source range neutron flux trip channels when in MODE 2, below the P-6 setpoint, and performing a reactor startup, or in MODE 3, 4, or 5 with the RTBs closed and the CRD system capable of rod withdrawal. With the unit in this condition, below P-6, the NIS source range performs the monitoring and protection functions. With both source range channels inoperable, the RTBs must be opened immediately. With the RTBs open, rod withdrawal is not possible and the unit enters ACTION 5.

ACTION 5

This ACTION applies when the required number of OPERABLE source range neutron flux channels is not met in MODE 3, 4, or 5 with the RTBs open. With the unit in this condition, the NIS source range performs the monitoring function. With less than the required number of source range channels OPERABLE, operations involving positive reactivity additions shall be suspended immediately. This will preclude any power escalation. However, a note applicable to this ACTION allows plant cooldown as long as the shutdown margin is adequate to account for the positive reactivity addition resulting from the temperature change. This ensures the core is controlled and the shutdown margin requirements are satisfied for all applicable events. In addition to suspension of positive reactivity additions, the valves that control the addition of unborated water to the RCS must be closed within 1 hour. The isolation of unborated water sources will preclude a boron dilution accident.

Also, the shutdown margin (SDM) must be verified within 1 hour and once every 12 hours thereafter as per SR 4.1.1.1.1 or 4.1.1.2, SDM verification. With no source range channels OPERABLE, core protection is severely reduced. Verifying the SDM within 1 hour allows sufficient time to perform the calculations and determine that

3/4.3.1 and 3/4.3.2 REACTOR TRIP SYSTEM AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION (Continued)

the SDM requirements are met. The SDM must also be verified once per 12 hours thereafter to ensure that the core reactivity has not changed. Item (a) precludes any positive reactivity additions; therefore, core reactivity should not be increasing, and a 12 hour frequency is adequate. This does not include xenon decay which is accounted for in the shutdown margin surveillance. The completion times of within 1 hour and once per 12 hours are based on operating experience in performing the ACTIONS and the knowledge that unit conditions will change slowly.

SOURCE RANGE NEUTRON FLUX

SURVEILLANCE REQUIREMENTS (SR)

CHANNEL CHECK

The alternate source range detectors are modified by a note to indicate they are not subject to the source range detector surveillance requirements until they have been connected to the applicable circuits and are required to be OPERABLE. This complies with the testing requirements for components that are required to be OPERABLE.

Performance of the CHANNEL CHECK once every 12 hours ensures that gross failure of instrumentation has not occurred. A CHANNEL CHECK is a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK for a single channel involves a qualitative assessment of the channel indication to verify the channel is operating in the approximate range for the expected plant conditions. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the unit staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the match criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

3/4.3.1 and 3/4.3.2 REACTOR TRIP SYSTEM AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION (Continued)

The frequency is based on operating experience that demonstrates channel failure is rare. Thus, performance of the CHANNEL CHECK ensures that undetected overt channel failure is limited to 12 hours. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.

When the control rods are fully inserted and are not capable of withdrawal, inadvertent control rod withdrawal is not a concern and one source range detector can adequately monitor the core.

CHANNEL FUNCTIONAL TEST

The alternate source range detectors are modified by a note to indicate they are not subject to the source range detector surveillance requirements until they have been connected to the applicable circuits and are required to be OPERABLE. This complies with the testing requirements for components that are required to be OPERABLE.

A CHANNEL FUNCTIONAL TEST is performed on each required channel every 92 days to ensure the entire channel will perform the intended function. Setpoints must be within the Allowable Values. The frequency of 92 days is justified in WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.

This surveillance is modified by a Note that specifies testing when below P-6 and is clarified to address the transition from MODE 2 to MODE 3. A transition into MODE 3 with the reactor trip breakers closed is often made for a short period of time during plant shutdown. During a normal shutdown, the reactor trip breakers are opened shortly after entering MODE 3. The transition time in MODE 3 from when the reactor trip breakers are closed to when they are opened is less than the time required to perform the CHANNEL FUNCTIONAL TEST prior to entering MODE 3. Therefore, an allowance to enter MODE 3 without first performing the source range CHANNEL FUNCTIONAL TEST is warranted.

CHANNEL CALIBRATION

The alternate source range detectors are modified by a note to indicate they are not subject to the source range detector surveillance requirements until they have been connected to the applicable circuits and are required to be OPERABLE. This complies with the testing requirements for components that are required to be OPERABLE.

3/4.3.1 and 3/4.3.2 REACTOR TRIP SYSTEM AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION (Continued)

A CHANNEL CALIBRATION is performed every 18 months, or approximately at every refueling. The CHANNEL CALIBRATION for the source range neutron detectors consists of obtaining the detector plateau and preamp discriminator curves, evaluating those curves, and establishing detector operating conditions as directed by the detector manufacturer. The 18 month frequency is based on the need to perform this surveillance under the conditions that apply during a plant outage since performance at power is not possible. The protection and monitoring functions are also calibrated at an 18 month frequency as is normal for reactor protection instrument channels. Operating experience has shown these components usually pass the surveillance when performed on the 18 month frequency.

3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

The OPERABILITY of the radiation monitoring channels ensures that: 1) the radiation levels are continually measured in the areas served by the individual channels; 2) the alarm or automatic action is initiated when the radiation level trip setpoint is exceeded; and 3) sufficient information is available on selected plant parameters to monitor and assess these variables following an accident. This capability is consistent with the recommendations of NUREG-0737, "Clarification of TMI Action Plan Requirements," October, 1980.

3/4.3.3.2 MOVABLE INCORE DETECTORS

The OPERABILITY of the movable incore detectors with the specified minimum complement of equipment ensures that the measurements obtained from use of this system accurately represent the spatial neutron flux distribution of the reactor core. The OPERABILITY of this system is demonstrated by irradiating each detector used and determining the acceptability of its voltage curve.

For the purpose of measuring $F_Q(Z)$ or $F^N_{\Delta H}$, a full incore flux map is used. Quarter-core flux maps, as defined in WCAP-8648, June 1976, may be used in re-calibration of the excore neutron flux detection system, and full incore flux maps or symmetric incore thimbles may be used for monitoring the Quadrant Power Tilt Ratio when one Power Range Channel is inoperable.

3/4.3.3.3 SEISMIC INSTRUMENTATION

The OPERABILITY of the seismic instrumentation ensures that sufficient capability is available to promptly determine the magnitude of a seismic event and evaluate the response of those features important to safety. This capability is required to permit comparison of the measured response to that used in the design basis for the facility and is consistent with the recommendations of Regulatory Guide 1.12, "Instrumentation for Earthquakes."

3/4.3.3.4 METEOROLOGICAL INSTRUMENTATION

The OPERABILITY of the meteorological instrumentation ensures that sufficient meteorological data is available for estimating potential radiation doses to the public as a result of routine or accidental release of radioactive materials to the atmosphere. This capability is required to evaluate the need for initiating protective measures to protect the health and safety of the public and is consistent with the recommendations of Regulatory Guide 1.23, "Onsite Meteorological Programs."

3/4.3.3.5 REMOTE SHUTDOWN INSTRUMENTATION

The OPERABILITY of the remote shutdown instrumentation ensures that sufficient capability is available to permit shutdown and maintenance of HOT STANDBY of the facility from locations outside of the control room. This capability is required in the event control room habitability is lost and is consistent with General Design Criteria 19 of 10 CFR 50.

3/4.3.3.6 (This Specification number is not used).

3/4.3.3.7 CHLORINE DETECTION SYSTEMS

The OPERABILITY of the chlorine detection systems ensures that sufficient capability is available to promptly detect and initiate protective action in the event of an accidental chlorine release. This capability is required to protect control room personnel and is consistent with the recommendations of Regulatory Guide 1.95, "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release," January 1977.

3/4.3.3.8 ACCIDENT MONITORING INSTRUMENTATION

The OPERABILITY of the accident monitoring instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables during and following an accident. This capability is consistent with the recommendations of Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Plants to Assess Plant Conditions During and Following an Accident," December 1975 and NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations."

3/4.3.3.11 EXPLOSIVE GAS MONITORING INSTRUMENTATION

This instrumentation includes provisions for monitoring (and controlling) the concentrations of potentially explosive gas mixtures in the waste gas holdup system. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63 and 64 of Appendix A to 10 CFR Part 50.

3/4.3.4 TURBINE OVERSPEED PROTECTION

This specification is provided to ensure that the turbine overspeed protection instrumentation and the turbine speed control valves are OPERABLE and will protect the turbine from excessive overspeed. Protection from turbine excessive overspeed is required since excessive overspeed of the turbine could generate potentially damaging missiles which could impact and damage safety related components, equipment or structures.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 217 AND 94 TO FACILITY OPERATING

LICENSE NOS. DPR-66 AND NPF-73

DUQUESNE LIGHT COMPANY

OHIO EDISON COMPANY

PENNSYLVANIA POWER COMPANY

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

THE TOLEDO EDISON COMPANY

BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2

DOCKET NOS. 50-334 AND 50-412

1.0 INTRODUCTION

By letter dated December 19, 1997, as supplemented June 16, July 9, and July 15, 1998, the Duquesne Light Company (the licensee) submitted a request for changes to the Beaver Valley Power Station, Unit Nos. 1 and 2 (BVPS-1 and BVPS-2), Technical Specifications (TSs). The requested changes would revise the requirements for the source range (SR) neutron flux channels in Modes 2 (Below P-6), 3, 4, and 5 to incorporate the guidance provided in NUREG-1431, the NRC's improved Standard Technical Specifications with some modifications to address plant-specific design features. This change allows (1) the use of alternate detectors provided the required functions are provided, and (2) plant cooldown with inoperable detectors provided the shutdown margin accounts for the temperature change. This change would also modify the BVPS-2 TS Table 3.3-1 Channels To Trip and Minimum Channels Operable requirements to 0 and 1, respectively. This portion of the amendment makes these BVPS-2 requirements consistent with the current BVPS-1 requirements. For both BVPS-1 and BVPS-2, TS Table 4.3-1 would be modified to include a notation exempting the alternate source range detectors from surveillance testing until they are required for operability. The June 16, July 9, and July 15, 1998 letters provided clarifying information that did not change the initial proposed no significant hazards consideration determination or expand the amendment request beyond the scope of the March 11, 1998, Federal Register notice.

2.0 EVALUATION

BVPS-1 has four Westinghouse BF3 type SR detectors NE-31, NE-32, NE-33 and NE-34. Out of these four detectors, two detectors NE-31 and NE-32 are connected to the respective SR channels pre-amplifiers to provide flux signal for monitoring and for protection functions in case the reactor trip breakers (RTBs) are closed and the control rod drive (CRD) system is capable of rod withdrawal. NE-31 and NE-32 are powered by redundant battery backed vital buses 1 and 2

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respectively. The remaining two detectors, NE-33 and NE-34, are installed as spares with field cabling that runs from the detector to preamplifier boxes of NE-31 and NE-32 respectively without being terminated at these preamplifier boxes. These spare detectors will be designated as alternate detectors. During Mode 2 (below P-6) and Modes 3, 4, and 5 of the plant operation, in case any one of the primary SR detectors (NE-31 or NE-32) is not operable, the licensee proposes to terminate the cable of the associated alternate detector (NE-33 or NE-34) at the preamplifier box and substitute the alternate detector for the primary inoperable NE-31 or NE-32 detector.

BVPS-2 has two Westinghouse BF3 type SR detectors (NE-31 and NE-32) normally in service to provide flux signals to control room (CR) indication and annunciation, and are powered by battery backed vital redundant buses 1 and 2 respectively. The BVPS-2 post accident monitoring (PAM) system has two Gamma-Metrics (G/M) detectors (NE-52A and NE-52B) which can monitor the entire range from SR to power range. These G/M channels are powered by diesel generator backed emergency 120 vac distribution panels E7 and E8, respectively. These PAM detectors are to be designated as alternate detectors. These alternate detectors can not be directly connected to the primary SR circuits. Therefore, the licensee proposes to use only the indications from the PAM G/M detectors NE-52A or NE-52B, in case any one of the primary SR detectors (NE-31 or NE-32) becomes inoperable during Mode 2 (below P-6) and Modes 3, 4, and 5 of the plant operation. A new Note has been added to TS Table 3.3-1 which reads, "May only be used for monitoring purposes without Rod Withdrawal capability until detection functions are modified to permit equivalent alarm and trip functions."

For BVPS-1, the spare detectors are of the exact design to the ones that are used for primary SR instrument loops. Therefore, substituting an alternate (spare) detector for the inoperable primary detector is basically a one-for-one replacement. For BVPS-2, the readings from the PAM G/M detector instrument loop will be substituted for the indication of any inoperable primary Westinghouse BF3 type detectors only when the system does not have rod withdrawal capability. The NRC staff noted that span and scale of BF3 detectors are different from the G/M type detectors and could cause confusion. During a conference call with the NRC staff on June 2, 1998, licensee personnel informed the NRC staff that the revised plant procedures will make operators aware of span/scale difference of these two types of detectors and clarify ACTION statements.

In their submittal, the licensee stated that the proposed change will continue to ensure that the required SR instrumentation functions will be available during shutdown and startup conditions. Also, because the power supplies, installed configurations and other operating parameters remain unchanged, none of the assumptions used in the past safety evaluations are voided by the proposed modification.

Plant cooldown in Modes 3, 4, and 5, and xenon decay, are recognized as positive reactivity insertions. However, these effects are accounted for in shutdown margin calculations, and shutdown margin calculations show that the shutdown margin remains essentially unchanged and will be able to preclude a criticality event during these Mode changes. The alternate detectors will be able to provide neutron monitoring of flux changes in place of the primary SR detectors assuring the same level of consistency with the existing TSs. Consequently, future plant evolutions (changes) can be performed while relying on the alternate detectors if the primary SR detectors are deemed inoperable. Therefore, the proposed change requiring the

use of alternate detectors in place of inoperable SR detectors, coupled to the SR detector circuitry providing the same required indications (flux monitoring) and functions, is acceptable.

Appropriate changes have been made to Tables TS 3.3-1 and 4.3-1 to reflect the inclusion of the alternate detectors. Westinghouse improved Standard Technical Specifications (NUREG-1431, Revision 1) Bases describing the SR detectors have been added to the Bases for TS 3/4.4.1 and TS 3/4.3.2. The licensee also included in the Bases a discussion describing the use of alternate detectors, and the suitability of the alternate detectors in place of the SR detectors. The NRC staff has no objections to the proposed changes in the Bases for TS 3/4.4.1 and TS 3/4.3.2. The use of the alternate detectors will in no way incorporate changes that would act to increase the probability of a positive reactivity insertion. The operability requirements will be the same when using the alternate detectors as when using the original SR detectors. Thus the operating requirements will be met.

Based on the foregoing, the NRC staff finds the proposed changes to the BVPS-1 and BVPS-2 TSs to allow the use of alternate SR detectors when the primary source range detectors are inoperable, acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Pennsylvania State official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve 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. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (63 FR 11918). Accordingly, the amendments meet 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 the amendments.

5.0 CONCLUSION

The Commission has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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