

April 6, 1993

Docket Nos. 50-334  
and 50-412

Mr. J. D. Sieber, Senior Vice President  
and Chief Nuclear Officer  
Nuclear Division  
Duquesne Light Company  
Post Office Box 4  
Shippingport, Pennsylvania 15077-0004

Dear Mr. Sieber:

**SUBJECT: ISSUANCE OF AMENDMENT NOS.170 AND 50 TO FACILITY OPERATING LICENSES  
DPR-66 AND NPF-73, IN RESPONSE TO CHANGE REQUEST NOS. 203/69;  
CONTAINMENT BUILDING PENETRATIONS (TAC NOS. M84674 AND M84675)**

The Commission has issued the enclosed Amendment Nos.170 and 50 to Facility Operating License Nos. DPR-66 and NPF-73 for the Beaver Valley Power Station, Unit Nos. 1 and 2, in response to your application dated November 2, 1992.

The amendments revise the Appendix A Technical Specifications (TSs) relating to reactor containment building penetrations. The amendments permit containment penetrations to be closed using a device that is functionally equivalent to an isolation valve, blind flange, or manual valve during core alterations or movement of irradiated fuel within containment. During refueling, the potential for containment pressurization as a result of an accident is very unlikely. Therefore, the requirements for containment isolation during refueling are different than the requirements during operation. The amendments make no change to the containment integrity requirements during reactor operation.

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

Sincerely,

<sup>/s/</sup>  
Gordon E. Edison, Senior Project Manager  
Project Directorate I-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No.170 to DPR-66
2. Amendment No.50 to NPF-73
3. Safety Evaluation

cc w/enclosures:

See next page

*Cp-1*

OFFICE	LA:PDI-3 <i>WJH</i>	PM:PDI-3 <i>#</i>	OGC <i>gfb</i>	D:PDI-3 <i>WJB</i>
NAME	TClark <i>WJH</i>	GEdison:mw	E.Holler <i>WJB</i>	WButler <i>WJB</i>
DATE	3/16/93	3/18/93	3/22/93	4/16/93

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

April 6, 1993

Docket Nos. 50-334  
and 50-412

Mr. J. D. Sieber, Senior Vice President  
and Chief Nuclear Officer  
Nuclear Division  
Duquesne Light Company  
Post Office Box 4  
Shippingport, Pennsylvania 15077-0004

Dear Mr. Sieber:

SUBJECT: ISSUANCE OF AMENDMENT NOS. 170 AND 50 TO FACILITY OPERATING LICENSES  
DPR-66 AND NPF-73, IN RESPONSE TO CHANGE REQUEST NOS. 203/69;  
CONTAINMENT BUILDING PENETRATIONS (TAC NOS. M84674 AND M84675)

The Commission has issued the enclosed Amendment Nos. 170 and 50 to Facility Operating License Nos. DPR-66 and NPF-73 for the Beaver Valley Power Station, Unit Nos. 1 and 2, in response to your application dated November 2, 1992.

The amendments revise the Appendix A Technical Specifications (TSs) relating to reactor containment building penetrations. The amendments permit containment penetrations to be closed using a device that is functionally equivalent to an isolation valve, blind flange, or manual valve during core alterations or movement of irradiated fuel within containment. During refueling, the potential for containment pressurization as a result of an accident is very unlikely. Therefore, the requirements for containment isolation during refueling are different than the requirements during operation. The amendments make no change to the containment integrity requirements during reactor operation.

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

Sincerely,

A handwritten signature in cursive script that reads "G E Edison".

Gordon E. Edison, Senior Project Manager  
Project Directorate I-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 170 to DPR-66
2. Amendment No. 50 to NPF-73
3. Safety Evaluation

cc w/enclosures:  
See next page

Mr. J. D. Sieber  
Duquesne Light Company

Beaver Valley Power Station  
Units 1 & 2

cc:

Jay E. Silberg, Esquire  
Shaw, Pittman, Potts & Trowbridge  
2300 N Street, NW.  
Washington, DC 20037

Nelson Tonet, Manager  
Nuclear Safety  
Duquesne Light Company  
Post Office Box 4  
Shippingport, Pennsylvania 15077

Commissioner Roy M. Smith  
West Virginia Department of Labor  
Building 3, Room 319  
Capitol Complex  
Charleston, West Virginia 25305

John D. Borrows  
Director, Utilities Department  
Public Utilities Commission  
180 East Broad Street  
Columbus, Ohio 43266-0573

Director, Pennsylvania Emergency  
Management Agency  
Post Office Box 3321  
Harrisburg, Pennsylvania 17105-3321

Ohio EPA-DERR  
ATTN: Zack A. Clayton  
Post Office Box 1049  
Columbus, Ohio 43266-01492222

Bureau of Radiation Protection  
Pennsylvania Department of  
Environmental Resources  
ATTN: R. Barkanic  
Post Office Box 2063  
Harrisburg, Pennsylvania 17120

Mayor of the Borough of  
Shippingport  
Post Office Box 3  
Shippingport, Pennsylvania 15077

Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, Pennsylvania 19406

Resident Inspector  
U.S. Nuclear Regulatory Commission  
Post Office Box 181  
Shippingport, Pennsylvania 15077

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Docket File 50-334

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PDI-3 Reading

S. Varga

J. Calvo

W. Butler

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G. Edison

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D. Hagan

G. Hill (4 copies)

Wanda Jones

C. Grimes

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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. 170  
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 November 2, 1992, 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. DPR-66 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 170, 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 of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Walter R. Butler, Director  
Project Directorate I-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: April 6, 1993

ATTACHMENT TO LICENSE AMENDMENT NO.170

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

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B 3/4 9-1  
B 3/4 9-2  
B 3/4 9-3  
B 3/4 9-4

Insert

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B 3/4 9-1  
B 3/4 9-2  
B 3/4 9-3  
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DPR-66  
REFUELING OPERATIONS

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

LIMITING CONDITION FOR OPERATION

3.9.4 The containment building penetrations shall be in the following status:

- a. The equipment door closed and held in place by a minimum of four bolts,
- b. A minimum of one door in each airlock is closed, and
- c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:
  1. Closed by an isolation valve, blind flange, manual valve, or approved functional equivalent, or
  2. Exhausting at less than or equal to 7500 cfm through OPERABLE Containment Purge and Exhaust Isolation Valves with isolation times as specified in Table 3.6-1 to OPERABLE HEPA filters and charcoal adsorbers of the Supplemental Leak Collection and Release System (SLCRS).

APPLICABILITY: During CORE ALTERATIONS or movement of irradiated fuel within the containment.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or movement of irradiated fuel in the containment. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.4.1 Each of the above required containment penetrations shall be determined to be in its above required condition within 150 hours prior to the start of and at least once per 7 days during CORE ALTERATIONS or movement of irradiated fuel in the containment.

4.9.4.2 The containment purge and exhaust system shall be demonstrated OPERABLE by:

- a. Verifying the flow rate through the SLCRS at least once per 24 hours when the system is in operation.
- b. Testing the Containment Purge and Exhaust Isolation Valves per the applicable portions of Specification 4.6.3.1.2, and
- c. Testing the SLCRS per Specification 4.7.8.1.

3/4.9 REFUELING OPERATIONSBASES

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3/4.9.1 BORON CONCENTRATION

The limitations on minimum boron concentration (2000 ppm) ensure that: 1) the reactor will remain subcritical during CORE ALTERATIONS, and 2) a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. The limitation of  $K_{eff}$  of no greater than 0.95 which includes a conservative allowance for uncertainties, is sufficient to prevent reactor criticality during refueling operations.

3/4.9.2 INSTRUMENTATION

The OPERABILITY of the source range neutron flux monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core.

3/4.9.3 DECAY TIME

The minimum requirement for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short lived fission products. This decay time is consistent with the assumptions used in the accident analyses.

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

The requirements on containment penetration closure and operability of the containment purge and exhaust system HEPA filters and charcoal adsorbers ensure that a release of radioactive material within containment will be restricted from leakage to the environment or filtered through the HEPA filters and charcoal adsorbers prior to discharge to the atmosphere within 10 CFR 100 limits. The OPERABILITY and closure restrictions are sufficient to restrict radioactive material release from a fuel element rupture based upon the lack of containment pressurization potential while in the REFUELING MODE. Operations of the containment purge and exhaust system HEPA filters and charcoal adsorbers and the resulting iodine removal capacity are consistent with the assumptions of the accident analysis.

All containment penetrations, except for the containment purge and exhaust penetrations, that provide direct access from containment atmosphere to outside atmosphere must be isolated on at least one side. Penetration closure may be achieved by an isolation valve, blind flange, manual valve, or functional equivalent. Functional equivalent isolation ensures releases from the containment are prevented for credible accident scenarios. The isolation techniques must be approved by an engineering evaluation and may include use of

DPR-66  
REFUELING OPERATIONS

BASES

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3/4.9.4 CONTAINMENT BUILDING PENETRATIONS (Continued)

a material that can provide a temporary, pressure tight seal capable of maintaining the integrity of the penetration to restrict the release of radioactive material from a fuel element rupture.

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

DPR-66  
REFUELING OPERATIONS

BASES

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3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION (Continued)

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.

3/4.9.10 AND 3/4.9.11 WATER LEVEL - REACTOR VESSEL AND STORAGE POOL

The restrictions on minimum water level ensure that sufficient water depth is available to remove 99 percent of the assumed 10 percent iodine gap activity released from the rupture of an irradiated fuel assembly. The minimum water depth is consistent with the assumptions of the accident analysis.

3/4.9.12 and 3/4.9.13 FUEL BUILDING VENTILATION SYSTEM

The limitations on the storage pool ventilation system ensure that all radioactive material released from an irradiated fuel assembly will be filtered through the HEPA filters and charcoal adsorber prior to discharge to the atmosphere. The OPERABILITY of this system and the resulting iodine removal capacity are consistent with the assumptions of the accident analysis. The spent fuel pool area ventilation system is non-safety related and only recirculates air through the fuel building. The SLCRS portion of the ventilation system is safety-related and maintains a negative pressure in the fuel building. The SLCRS flow is normally exhausted to the atmosphere without filtering, however, the flow is diverted through the main filter banks by manual actuation or on a high radiation signal.

3/4.9.14 FUEL STORAGE - SPENT FUEL STORAGE POOL

The requirements for fuel storage in the spent fuel pool ensure that: (1) the spent fuel pool will remain subcritical during fuel storage; and (2) a uniform boron concentration is maintained in the water volume in the spent fuel pool to provide negative reactivity for postulated accident conditions under the guidelines of ANSI

DPR-66  
REFUELING OPERATIONS

BASES

3/4.9.14 FUEL STORAGE - SPENT FUEL STORAGE POOL (Continued)

16.1-1975. The value of 0.95 or less for  $k_{eff}$  which includes all uncertainties at the 95/95 probability/confidence level is the acceptance criteria for fuel storage in the spent fuel pool.

The Action Statement applicable to fuel storage in the spent fuel pool ensures that: (1) the spent fuel pool is protected from distortion in the fuel storage pattern that could result in a critical array during the movement of fuel; and (2) the boron concentration is maintained at  $\geq 1050$  ppm (this includes a 50 ppm conservative allowance for uncertainties) during all actions involving movement of fuel in the spent fuel pool.

The Surveillance Requirements applicable to fuel storage in the spent fuel pool ensure that: (1) the fuel assemblies satisfy the analyzed U-235 enrichment limits or an analysis has been performed and it was determined that  $K_{eff}$  is  $\leq 0.95$ ; and (2) the boron concentration meets the 1050 ppm limit.

The enrichment limitations for storage of fuel in a 3 of 4 array in the spent fuel pool is based on a nominal region average enrichment with individual fuel assembly tolerance of + or - 0.05 w/o U-235.

The results of the spent fuel pool criticality analysis (August 1986) for Westinghouse STD/Vantage 5H and OFA/Vantage 5 fuel in three of four storage locations show that there is more than 0.3 percent margin to the  $k_{eff}$  limit of 0.95 with all uncertainties included. Based on the sensitivity study completed with this analysis, an increase in the maximum allowed enrichment for fuel stored in the spent fuel storage racks from 4.00 to 4.05 w/o will increase the maximum rack  $k_{eff}$  by less than 0.002. Therefore, with Westinghouse 17 x 17 STD/Vantage 5H and OFA/Vantage 5 fuel enriched at 4.05 w/o stored in the spent fuel racks in three of four storage locations and with all of the assumptions and conservatisms presented in the criticality analysis, the maximum rack  $k_{eff}$  will be less than 0.95.

3/4.9.15 CONTROL ROOM EMERGENCY HABITABILITY SYSTEMS

The OPERABILITY of the control room emergency habitability system ensures that the control room will remain habitable for operations personnel during and following all credible accident conditions. The ambient air temperature is controlled to prevent exceeding the allowable equipment qualification temperature for the equipment and instrumentation in the control room. 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 consistent with the requirements of General Design Criteria 19 of Appendix "A", 10 CFR 50.



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

DUQUESNE LIGHT COMPANY

OHIO EDISON COMPANY

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

THE TOLEDO EDISON COMPANY

DOCKET NO. 50-412

BEAVER VALLEY POWER STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 50  
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 November 2, 1992, 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.

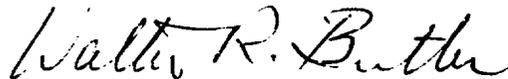
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-73 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 50, 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 of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Walter R. Butler, Director  
Project Directorate I-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: April 6, 1993

ATTACHMENT TO LICENSE AMENDMENT NO. 50

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

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B 3/4 9-4

REFUELING OPERATIONS3/4.9.4 CONTAINMENT BUILDING PENETRATIONSLIMITING CONDITION FOR OPERATION

3.9.4 The containment building penetrations shall be in the following status:

- a. The equipment door closed and held in place by a minimum of four bolts,
- b. A minimum of one door in each airlock is closed, and
- c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:
  1. Closed by an isolation valve, blind flange, manual valve, or approved functional equivalent, or
  2. Exhausting at less than or equal to 7500 cfm through OPERABLE Containment Purge and Exhaust Isolation Valves with isolation times as specified in Table 3.6-1 to OPERABLE HEPA filters and charcoal adsorbers of the Supplemental Leak Collection and Release System (SLCRS).

APPLICABILITY: During CORE ALTERATIONS or movement of irradiated fuel within the containment.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or movement of irradiated fuel in the containment. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.4.1 Each of the above required containment penetrations shall be determined to be in its above required condition within 150 hours prior to the start of and at least once per 7 days during CORE ALTERATIONS or movement of irradiated fuel in the containment.

4.9.4.2 The containment purge and exhaust system shall be demonstrated OPERABLE by:

- a. Verifying the flow rate through the SLCRS at least once per 24 hours when the system is in operation.
- b. Testing the Containment Purge and Exhaust Isolation Valves per the applicable portions of Specification 4.6.3.1.2, and
- c. Testing the SLCRS per Specification 4.7.8.1 with the exception of item 4.7.8.1.c.2.

3/4.9 REFUELING OPERATIONSBASES

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3/4.9.1 BORON CONCENTRATION

The limitations on minimum boron concentration (2000 ppm) ensure that: 1) the reactor will remain subcritical during CORE ALTERATIONS, and 2) a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. The limitation on  $K_{eff}$  of no greater than 0.95 which includes a conservative allowance for uncertainties, is sufficient to prevent reactor criticality during refueling operations.

Isolating all reactor water makeup paths from unborated water sources precludes the possibility of an uncontrolled boron dilution of the filled portions of the Reactor Coolant System. This limitation is consistent with the initial conditions assumed in the accident analyses for MODE 6.

3/4.9.2 INSTRUMENTATION

The OPERABILITY of the source range neutron flux monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core.

3/4.9.3 DECAY TIME

The minimum requirement for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short lived fission products. This decay time is consistent with the assumptions used in the accident analyses.

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

The requirements on containment penetration closure limit leakage of radioactive material within containment to the environment to ensure compliance with 10 CFR 100 limits. The requirements on operation of the SLCRS ensure that trace amounts of radioactive material within containment will be filtered through HEPA filters and charcoal absorbers prior to discharge to the atmosphere. These requirements are sufficient to restrict radioactive material release from a fuel element rupture based upon the lack of containment pressurization potential while in the REFUELING MODE.

All containment penetrations, except for the containment purge and exhaust penetrations, that provide direct access from containment atmosphere to outside atmosphere must be isolated on at least one side. Penetration closure may be achieved by an isolation

REFUELING OPERATIONSBASES3/4.9.4 CONTAINMENT BUILDING PENETRATIONS (Continued)

valve, blind flange, manual valve, or functional equivalent. Functional equivalent isolation ensures releases from the containment are prevented for credible accident scenarios. The isolation techniques must be approved by an engineering evaluation and may include use of a material that can provide a temporary, pressure tight seal capable of maintaining the integrity of the penetration to restrict the release of radioactive material from a fuel element rupture.

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 plus an additional 50 rods in the struck 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.

NPF-73  
REFUELING OPERATIONS

BASES

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3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION (Continued)

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 meet 10 CFR 100 requirements in the event of a fuel handling accident inside containment. 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.

3/4.9.10 AND 3/4.9.11 WATER LEVEL - REACTOR VESSEL AND STORAGE POOL

The restrictions on minimum water level ensure that sufficient water depth is available to remove 99 percent of the assumed 10 percent iodine gas activity released from the rupture of an irradiated fuel assembly. The minimum water depth is consistent with the assumptions of the accident analysis.

3/4.9.12 and 3/4.9.13 FUEL BUILDING VENTILATION SYSTEM

The limitations on the storage pool ventilation system ensure that all radioactive material released from an irradiated fuel assembly will be filtered through the HEPA filters and charcoal adsorber prior to discharge to the atmosphere. The OPERABILITY of this system and the resulting iodine removal capacity are consistent with the assumptions of the accident analysis. The spent fuel pool area ventilation system is non-safety related and only recirculates air through the fuel building. The fuel building portion of the SLCRS is safety related and continuously filters the fuel building exhaust air. This maintains a negative pressure in the fuel building.

NPF-73  
REFUELING OPERATIONS

BASES

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3/4.9.14 FUEL STORAGE - SPENT FUEL STORAGE POOL

The requirements for fuel storage in the spent fuel pool ensure that: (1) the spent fuel pool will remain subcritical during fuel storage; and (2) a uniform boron concentration is maintained in the water volume in the spent fuel pool to provide negative reactivity for postulated accident conditions under the guidelines of ANSI 16.1-1975. The value of 0.95 or less for  $K_{eff}$  which includes all uncertainties at the 95/95 probability/confidence level is the acceptance criteria for fuel storage in the spent fuel pool.

Verification that peak fuel rod burnup is less than 60 GWD/MTU is provided in the reload evaluation report associated with each fuel cycle.

The Action Statement applicable to fuel storage in the spent fuel pool ensures that: (1) the spent fuel pool is protected from distortion in the fuel storage pattern that could result in a critical array during the movement of fuel; and (2) the boron concentration is maintained at  $\geq 1050$  ppm (this includes a 50 ppm conservative allowance for uncertainties) during all actions involving movement of fuel in the spent fuel pool.

The Surveillance Requirements applicable to fuel storage in the spent fuel pool ensure that: (1) the fuel assemblies satisfy the analyzed U-235 enrichment limits or an analysis has been performed and it was determined that  $K_{eff}$  is  $\leq 0.95$ ; and (2) the boron concentration meets the 1050 ppm limit.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 170 TO FACILITY OPERATING LICENSE NO. DPR-66  
AND AMENDMENT NO. 50 TO FACILITY OPERATING LICENSE NO. 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 November 2, 1992, the Duquesne Light Company, et al. (the licensee) submitted an application for amendments to the Beaver Valley Power Station, Units 1 and 2, Technical Specifications. The proposed amendments would allow the licensee to use approved temporary closures for containment penetrations during alterations of the core or movement of irradiated fuel within the containments. The temporary closures would be functionally equivalent to the valves or blind flanges that are normally used as closures.

2.0 BACKGROUND

Limiting Condition for Operation (LCO) 3.9.4.c in the Technical Specifications for both units is applicable during alterations of the core or movement of irradiated fuel within the containments. The LCO requires that each containment penetration be closed with a valve or blind flange or that the containment atmosphere be continuously purged to the environment through high efficiency filters and charcoal absorbers. However, closing certain penetrations with valves or blind flanges would prevent the licensee from using the penetrations for routing cables into containment that are necessary in order to use eddy current test equipment for the examination of piping or other components or to facilitate other outage activities.

3.0 PROPOSED CHANGES TO THE TECHNICAL SPECIFICATIONS

3.1 LCOs

LCO 3.9.4.c.1 would be revised to permit closure of containment penetrations with approved temporary closures that would be functionally equivalent to

valves or blind flanges in that they would prevent air and contaminants within the containment from leaking to the environment as a result of barometric, diurnal, or other modest pressure changes.

### 3.2 BASES

The Bases for LCO 3.9.4 and Surveillance Requirement 4.9.4 would be changed to indicate that temporary closures would be capable of retaining the radioactivity released within containment that would be associated with credible accidents, including the rupture of a fuel element, that might occur during alterations of the core or movement of irradiated fuel.

### 4.0 EVALUATION

The "Standard Technical Specifications for Westinghouse Plants" (NUREG-1431, Revision 0, Volumes 1 and 3, dated September 28, 1992), permits the use of closures that are equivalent to valves or blind flanges for closure of containment penetrations during alterations of the core or movement of irradiated fuel assemblies within containment. Pressure ratings for the equivalent closures are not set forth in the Technical Specifications because failure of a fuel assembly in containment with the reactor shut down would not cause a measurable pressure transient. Further, the bases for this Standard Technical Specification state that containment pressurization is unlikely while the reactor is shut down for refueling and that 10 CFR Part 50, Appendix J leakage criteria and tests are not required.

The staff finds the licensee's proposed addition to the Technical Specifications for Beaver Valley Units 1 and 2 consistent with the Westinghouse Standard Technical Specifications and is acceptable since it provides an adequate level of safety for the applicable conditions.

### 5.0 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.

### 6.0 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. 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 (58 FR 5429). 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.

**7.0 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.

**Principal Contributor: R. Woodruff**

**Date: April 6, 1993**