June 22, 1988

Docket No. 50-334

DISTRIBUTION
Docket File
NRC & Local PDRs
S. Varga
B. Boger
S. Norris
P. Tam
OGC
D. Hagan
Gray File
E. Jordan
B. Grimes
T. Barnhart(4)
Wanda Jones
E. Butcher
ACRS(10)
GPA/PA
ARM/LFMB
Joseph Golla

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

Dear Mr. Sieber:

SUBJECT: ISSUANCE OF AMENDMENT (TAC NO. 62291)

The Commission has issued the enclosed Amendment No.127 to Facility Operating License No. DPR-66 for the Beaver Valley Power Station, Unit No. 1, in response to your application dated August 22, 1986, supplemented by letter dated April 16, 1987.

The amendment deletes from Technical Specification Table 3.6-1 the inside-containment isolation valves 1 HY-120 and -119, and adds the outside-containment isolation valves 1HY-197 and -196. These valves all pertain to the hydrogen recombiner system.

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

Sincerely,

original signed by

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

Enclosures:
1. Amendment No. 127 to DPR-66
2. Safety Evaluation

cc w/enclosures:
See next page

LA:PDI-4	PM:PDI-4	D:PDI-4	OGC
SNorris	PTam:bd	JStolz	
06/14/88	06/15/88	06/22/88	06/16/88

Mr. J. Sieber
Duquesne Light Company

cc:

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

Kenny Grada, Manager
Nuclear Safety
Duquesne Light Company
P. O. Box 4
Shippingport, Pennsylvania 15077

William Lacey, Manager
Nuclear Operations Department
Post Office Box 4
Duquesne Light Company
Shippingport, Pennsylvania 15077

John A. Lee, Esquire
Duquesne Light Company
One Oxford Centre
301 Grant Street
Pittsburgh, Pennsylvania 15279

W.F. Carmichael, Commissioner
Department of Labor
1800 Washington Street East
Charleston, West Virginia 25305

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

Beaver Valley Power Station
Units 1 & 2

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

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

Ashley C. Schannauer
Assistant City Solicitor
City of Pittsburgh
313 City-County Building
Pittsburgh, Pennsylvania 15219

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

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

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. 127
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 August 22, 1986, supplemented by letter dated April 16, 1987, 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. 127 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective on isssuance, to be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 22, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 127

FACILITY OPERATING LICENSE NO. DPR-66

DOCKET NO. 50-334

Replace the following page of the Appendix A Technical Specifications with the enclosed page as indicated. The revised page is identified by amendment number and contains vertical lines indicating the areas of change.

Remove	Insert
3/4 6-19g	3/4 6-19g

TABLE 3.6-1
CONTAINMENT PENETRATIONS

PENT. NO.-AREA	IDENTIFICATION/DESCRIPTION	INSIDE VALVE	MAXIMUM STROKE TIME*(SEC)	OUTSIDE VALVE	MAXIMUM STROKE TIME*(SEC)
78-SgD	FW Loop 1C	Closed System	N/A	(2)MOV-1FW-156C	75
	FW Loop 1C	Closed System	N/A	(2)FCV-1FW-498	10
	FW Loop 1C	Closed System	N/A	(6)MOV-1FW-158C	N/A
	Auxiliary Feedwater Loop 1C	Closed System	N/A	(2)MOV-1FW-151A	N/A
	Auxiliary Feedwater Loop 1C	Closed System	N/A	(2)MOV-1FW-151B	N/A
79-SgD	RW to 1A RSP Hx	Closed System	N/A	(2)MOV-1RW-104A	N/A
80-SgD	RW to 1C RSP Hx	Closed System	N/A	(2)MOV-1RW-104C	N/A
81-SgD	RW to 1B RSP Hx	Closed System	N/A	(2)MOV-1RW-104B	N/A
82-SgD	RW to 1D RSP Hx	Closed System	N/A	(2)MOV-1RW-104D	N/A
83-SgD	RW from 1A RSP Hx	Closed System	N/A	(2)MOV-1RW-105A	N/A
84-SgD	RW from 1C RSP Hx	Closed System	N/A	(2)MOV-1RW-105C	N/A
85-SgD	RW from 1B RSP Hx	Closed System	N/A	(2)MOV-1RW-105B	N/A
86-SgD	RW from 1D RSP Hx	Closed System	N/A	(2)MOV-1RW-105D	N/A
87-SgD	H_2 Discharge to CNMT		N/A	1HY-111 1HY-197	N/A
88-SgD	H_2 Discharge to CNMT		N/A	1HY-110 1HY-196	N/A
89-SgD	Main Condenser Ejector Vent	1AS-278	N/A	(B)TV-1SV-100A	20
90-SgD	CNMT Purge Exhaust	VS-D-5-3B	(5)8	VS-D-5-3A	(5)8
91-SgD	CNMT Purge Supply	VS-D-5-5B	(5)11	VS-D-5-5A VS-D-5-6	(5)8 N/A

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 127 TO FACILITY OPERATING LICENSE NO. DPR-66

DUQUESNE LIGHT COMPANY

OHIO EDISON COMPANY

PENNSYLVANIA POWER COMPANY

BEAVER VALLEY POWER STATION, UNIT NO. 1

DOCKET NO. 50-334

INTRODUCTION

By letter dated August 22, 1986 and supplemented by letter dated April 16, 1987, Duquesne Light Company (the licensee, acting as agent for the utilities listed above) submitted Technical Specification Change Request No. 130, to Operating License No. DPR-66, requesting that the Technical Specifications (TS) Table 3.6-1, Containment Penetrations, be amended to reflect valving modifications made for the hydrogen recombiner discharge piping at penetrations 87 and 88. This change is proposed to be consistent with the system valve configuration.

BACKGROUND

The hydrogen recombiners were modified during the fifth refueling outage to upgrade the electrical components to more current standards. Part of the modification included replacing the positive displacement blowers in the recombiners with centrifugal blowers. When testing the recombiners, the licensee determined that the required flow through the recombiners could not be obtained with the containment at normal operating vacuum. In a resultant investigation, the licensee determined that the weight-loaded 2-inch swing check valves installed inside containment on both the recombiner suction and discharge lines offered too high a resistance to flow for the new blowers. Subsequent testing conducted with these check valves held open resulted in acceptable test results, demonstrating the operability of the hydrogen recombiners. In order to achieve the piping and valve configuration to attain the required recombiner flow, a plant modification was effected.

The inside-containment check valves on the recombiner suction lines do not function as containment isolation valves but, rather, function to prevent air in-leakage to containment in the event of failure of the containment vacuum pumps which maintain the containment subatmospheric under normal conditions. The internals of these suction valves were removed and new check valves were installed downstream of the two outside-containment isolation valves and upstream of the containment vacuum pumps to prevent air in-leakage to containment.

One new ball valve was installed outside-containment in each recombiner discharge pipe to serve as a new containment isolation valve. These valves were installed as close to the existing outside containment isolation valves as possible and still permit leak testing. The old containment isolation valves on the discharge piping (weighted swing check valves), which used to function as isolation valves, had their internals removed following successful acceptance testing of the new isolation valves.

This configuration does not conform to any of the containment isolation valve configurations described in 10 CFR Part 50, Appendix A, General Design Criteria (GDC) 56, Primary Containment Isolation. Within GDC 56, configurations other than those defined may be found acceptable if it is demonstrated that containment isolation provisions for a specific class of lines are acceptable on some other defined basis. The licensee has proposed that the recombiner piping is a specific class of lines, and has provided a defined basis for acceptability. Of primary concern is the ability to reclose the hydrogen recombiner containment isolation valves following a DBA with the hydrogen recombiner in service in the event a leak is discovered in the system. A leak in the system could make this area inaccessible due to radiological conditions. This Safety Evaluation (SE) will evaluate the system modification with regard to:

1. The system configuration now in place.

2. Radiological considerations with respect to the utilization of manual containment isolation valves instead of remote/manual operated valves in the hydrogen recombiner area.

PROPOSED CHANGES

The proposed amendment would revise the containment isolation valves listed for Table 3.6-1 penetrations 87 and 88 (hydrogen recombiner discharge to containment). The proposed changes would support the modification of the valve configuration for the hydrogen recombiner discharge piping.

The following technical specification changes are proposed:

1. Remove the inside-containment isolation valves 1HY-120 and 1HY-119 from the table at penetrations 87 and 88, respectively.

2. Add the new outside-containment isolation valves 1HY-197 and 1HY-196 to the table at penetrations 87 and 88, respectively.

REVIEW CRITERIA/REQUIREMENTS

1. Branch Technical Position MEB 3-1, "Postulated Rupture Locations in Fluid System Piping Inside and Outside Containment," Section B.2.b.

2. BVPS Unit No. 1 Updated Final Safety Analysis Report (UFSAR) Figure 14.3-60, "Effect of Recombiner Operation on Hydrogen Concentration in Containment Following a DBA."

3. BVPS Unit No. 1 Calculation No. ERS-SFL-86-023, "Dose Rate at H_2 Recombiner Discharge Containment Isolation Valves 751' MS Valve Room." NOTE: The calculation is available only onsite; it has not been submitted to the NRC.

4. NUREG-0737, "Clarification of TMI Action Plan Requirements."

EVALUATION

ITEM 1 - System Configuration

The configuration which now exists as a result of modification at the hydrogen recombiner discharge piping, at penetrations 87 and 88, includes new in-series manually operated ball valves located outside of containment. General Design Criterion GDC-56 (1) stipulates that one locked closed isolation valve be placed inside and one locked closed isolation valve be placed outside containment. The original design was acceptable without the locked closed isolation valve inside containment. This part of the design change has not degraded the acceptability but has improved acceptability by the addition of the ball check valves at penetrations 87 and 88 which are capable of being locked closed. GDC-56 further stipulates that isolation valves outside containment be located as close to the containment as practical. The licensee has located containment isolation valves 1HY-197 and 1HY-196 as close to to containment as is practical and still permit leak testing of these components. Both trains of the hydrogen recombiner discharge piping from the skid connection to the containment penetration meets the break/crack exclusion criteria set forth in Branch Technical Position MEB 3-1, "Postulated Rupture Locations in Fluid Piping Inside and Outside Containments." As a result, this piping is not expected to fail. Additionally, the maximum working pressure of the recombiner system is less than 6 psig and the discharge piping is Class 151, Schedule 80, 150 pound carbon steel. During operation, under accident conditions, the recombiner discharge piping would not exceed a working pressure of several inches of water at 150°F. Additionally, the licensee has committed to test the Unit 1 piping between the containment isolation valves at 1.5 Pa during Appendix J testing to provide assurance that the integrity of the piping is maintained. The licensee has also committed to verify that the containment isolation valves on the recombiner systems are closed and locked shut once per 24 hours when Unit 1 is in Modes 1-4.

We note that similar piping arrangements have been approved and currently exist at Beaver Valley Unit 1 for the Hydrogen Recombiner Suction Piping, the Containment Vacuum Pump Suction Lines, and the Containment Leakage Monitoring Taps, that is, no provisions made for isolation inside containment, (see Tables 5.3-1, 5.3-1A of the UFSAR for details). It should also be noted that this configuration is similar to that of the North Anna Power Station Units 1 and 2 Hydrogen Recombiner Suction Lines and their Post-Accident Sample System Configurations (see North Anna FSAR Table 6.2-39 for details).

As discussed above, the licensee has demonstrated an alternate defined basis permitted under GDC-56 for containment isolation for the hydrogen recombiner discharge piping. The new design basis satisfies the intent of GDC-54 and GDC-56. We conclude, on this basis, that the licensee's proposal to remove from Table 3.6.1 the inside-containment isolation valves 1HY-120 and 1HY-119, and add outside-containment isolation valves 1HY-197 and 1HY-196 to Table 3.6.1 is acceptable.

ITEM 2 - Radiological Considerations

The Beaver Valley design uses two 100% redundant capacity hydrogen recombiners installed and ready to be placed in service. Based on accident analysis, the hydrogen recombiners do not have to be placed in service until two days following a DBA.

Each unit and its associated piping is considered an extension of the containment pressure boundary when in service. Beaver Valley also uses a subatmospheric containment which is designed to be restored to a subatmospheric condition within 60 minutes following a DBA and maintained subatmospheric for an extended period of time. Consequently, the containment is at a subatmospheric pressure when the recombiners are being used. Any leakage in the hydrogen recombiner system at this point would be in-leakage. There are four narrow-range and two wide-range containment pressure instruments continually in service which are used to detect leakage into containment. All six instruments are qualified and powered from 1E power sources. Recorders also exist for trending purposes. The hydrogen recombiners and control panels are located in the safeguards area which is serviced by the supplemental leak collection and release system which maintains all serviced areas at a pressure less than atmospheric and collects and filters all leakage from ESF components. This area is physically accessible following a DBA for both starting and stopping the recombiners.

If instrumentation indicates an increase in containment pressure following the startup of the recombiners, this would alert the operators to examine the recombiners as the source of containment in-leakage. If it was determined that leakage existed in a component within the recombiner assembly, the operators could shut down the affected recombiner. Since the containment is subatmospheric at this point, the recombiner lines would be purged into containment and the operators could close the associated manual containment isolation valves. The licensee has calculated the dose rates at the hydrogen recombiner discharge piping containment isolation valves to determine accessibility to these valves following a LOCA. Five potential sources were evaluated. The combined results from these five potential sources indicate that it would be feasible to have an individual enter the main steam valve room and operate the manual containment isolation valves for the hydrogen recombiner discharge piping and receive doses below the 10 CFR 50, Appendix A, GDC-19 limits. Furthermore, the licensee has committed to conduct leak testing of the recombiner units each refueling outage to provide high assurance that the integrity of the recombiner units is maintained.

The design as it currently exists provides assurance that the recombiner controls and valves are accessible during periods when the recombiner would be required for service. We, therefore, conclude that the use of manual containment isolation valves at the hydrogen recombiner discharge piping penetrations, taking into account the prevailing radiological conditions post-DBA, is acceptable in lieu of remote/manually controlled valves or automatic isolation valves.

ENVIRONMENTAL CONSIDERATION

This amendment changes a requirement with respect to the installation or use of a facility component located within the restricted areas as defined in 10 CFR Part 20. We have determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. We have previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

PRINCIPAL CONTRIBUTOR: Joseph A. Golla

DATE: June 22, 1988