FOIA 84-431

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

April 29, 1983

Docket No. 50-334

MEMORANDUM FOR: Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

FROM: H. Brent Clayton, Acting Chief
Procedures and Systems Review Branch
Division of Human Factors Safety

SUBJECT: BEAVER VALLEY UNIT 1, TWO LOOP OPERATION,
REQUEST FOR ADDITIONAL INFORMATION
(STARTUP TESTS)

Your work request dated April 18, 1983, requested that PSRB review Duquesne Light's submittals regarding N-1 loop operation.

Enclosed are two questions which we request that you transmit to the licensee.

H. Brent Clayton, Acting Chief
Procedures and Systems Review Branch
Division of Human Factors Safety

Enclosure:
Request for Additional
Information

cc w/enclosure:
P. Tam, ORPM
R. Barrett, RSB

CONTACT: W. Long
(X24579)

8305260020XA
PDR

Release

PSRB REQUEST FOR ADDITIONAL INFORMATION

PSRB-1 (REF: Reg. Guide 1.68, App. A.2.f)	The BVPS-1 Startup Report (Initial Startup Cycle) indicates that N-1 flow coastdown measurements were performed during Initial Startup. Confirm that the data is still valid (i.e., no changes to RCS piping, reactor internals, fuel design, S/G's or RCP's have occurred which would affect the original test results in a less conservative direction).
PSRB-2 (REF: Reg. Guide 1.68, App. A.1.c)	It is not clear, from the BVPS-1 Startup Report for the Initial Startup, that the "RTD Bypass Loop Flow Verification" test data and acceptance criteria are adequate to support N-1 operation in view of the fact that N-1 operation may reduce cold leg RTD bypass flow. Confirm that RTD response times will be acceptable for N-1 loop operation.

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84-431

JUN 2 6 1983

Docket No. 50-334

Mr. J. J. Carey, Vice President
Duquesne Light Company
Nuclear Division
Post Office Box 4
Shippingport, Pennsylvania 15077

Dear Mr. Carey:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ON N-1 LOOP OPERATION

In our continuing effort to review your request on the subject issue, we have generated additional questions. In order to meet our target date of December 1983 to close out this issue, please provide your response within 45 days of receipt of this letter. These questions are raised by our Core Performance Branch.

Please feel free to contact the Project Manager, Mr. Peter Tam at any time.

Sincerely,

Steven A. Varga

Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

Enclosure:
Request for Additional
Information

cc:
See next page

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Release

cc: Mr. W. S. Lacey
Station Superintendent
Duquesne Light Company
Beaver Valley Power Station
Post Office Box 4
Shippingport, Pennsylvania 15077

Charles A. Thomas, Esquire
Thomas and Thomas
212 Locust Avenue
Box 999
Harrisburg, Pennsylvania 17108

Gerald Charnoff, Esquire
Jay E. Silberg, Esquire
Shaw, Pittman, Potts and Trowbridge
1800 M Street, N.W.
Washington, D.C. 20036

Karin Carter, Esquire
Special Assistant Attorney General
Bureau of Administrative Enforcement
8th Floor, Executive House
Harrisburg, Pennsylvania 17120

Marvin Fein
Utility Counsel
City of Pittsburgh
313 City-County Building
Pittsburgh, Pennsylvania 15219

Mr. John A. Levin
Public Utility Commission
P.O. Box 3265
Harrisburg, Pennsylvania 17120

Irwin A. Popowsky, Esquire
Office of Consumer Advocate
1425 Strawberry Square
Harrisburg, Pennsylvania 17120

Mr. K. Grada, Superintendent
of Licensing and Compliance
Duquesne Light Company
Nuclear Division
Post Office Box 4
Shippingport, Pennsylvania 15077

Resident Inspector
U. S. Nuclear Regulatory Commission
Post Office Box 298
Shippingport, Pennsylvania 15077

Regional Administrator - Region I
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

Request for Additional Information

N-1 Loop Operation

AUG 26 1983

1. During two-loop operation of Beaver Valley Unit 1, temperature differences in the active cold legs of a few degrees could exist. Therefore a radial power tilt and an increase in enthalphy rise factor could result. Provide the following information for justifying the design for two-loop operation:

   1. The method of accounting for differences (if any) in the two and three-loop thermal-hydraulic design;

   2. Any special monitoring procedures required during two loop operation;

   3. The reactor protective system setpoints related to DNBR protection and how they are generated;

   4. The effects of anticipated operational occurrences on the cold leg temperature distributions and how this effect is included in the design;

   5. A thermal hydraulic design comparison table similar to Table 4.4 in the SER for two and three-loop operation. In addition this comparison should include the core pressure drop, the critical heat flux correlation used, the minimum DNBR limit, the nominal minimum DNBR for the typical and thimble (cold wall) flow channel and design DNBR for the design transient for both the typical and thimble (cold wall) flow channel. What is the design transient?

2. Inlet flow maldistribution is a possibility with two-loop operation. Have flow model tests or analytical studies been made for this effect? If so, provide the reference and results and also provide the following information.

   1. What asymmetries exist (if any) in the core flow due to isolation of one loop? Provide inlet flow distribution maps for two and three-loop operation.

2. What is the effect of any inlet flow maldistribution on the hot channel DNBR.

3. What impact do any asymmetries have on power distribution, DNB limits and fuel integrity?

4. Provide information on flow instability with two-loop operation.

3. Provide the following information relative to the Technical Specifications for two-loop operation.

1. What changes (if any) are required for safety limits, DNB parameters, and overtemperature delta T setpoint parameters?

2. What is the required minimum flow rate for two-loop operation?