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October 12, 1984

United States Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Mr. George W. Knighton, Chief
Licensing Branch 3
Office of Nuclear Reactor Regulation

SUBJECT: Beaver Valley Power Station - Unit No. 2
Docket No. 50-412
Response to DSER Open Items

Gentlemen:

This letter forwards responses to the issues listed below. The following items are attached:

Attachment 1: Response to Outstanding Issue 46 of the Beaver Valley Power Station Unit No. 2 Draft Safety Evaluation Report

Attachment 2: Response to Outstanding Issue 74 of the Beaver Valley Power Station Unit No. 2 Draft Safety Evaluation Report

DUQUESNE LIGHT COMPANY

By E. J. Woolever
E. J. Woolever
Vice President

KAT/wjs
Attachments

cc: Mr. H. R. Denton, Director NRR (w/a)
Mr. D. Eisenhut, Director Division of Licensing (w/a)
Mr. G. Walton, NRC Resident Inspector (w/a)
Mr. E. A. Licitra, Project Manager (w/a)
Ms. M. Ley, Project Manager (w/a)

SUBSCRIBED AND SWORN TO BEFORE ME THIS
12th DAY OF October, 1984.

Anita Elaine Reiter
Notary Public

ANITA ELAINE REITER, NOTARY PUBLIC
ROBINSON TOWNSHIP, ALLEGHENY COUNTY
MY COMMISSION EXPIRES OCTOBER 20, 1986

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COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF ALLEGHENY)

On this 4th day of October, 1984, before me, a Notary Public in and for said Commonwealth and County, personally appeared E. J. Woolever, who being duly sworn, deposed and said that (1) he is Vice President of Duquesne Light, (2) he is duly authorized to execute and file the foregoing Submittal on behalf of said Company, and (3) the statements set forth in the Submittal are true and correct to the best of his knowledge.

Anita Elaine Reiter
Notary Public

ANITA ELAINE REITER, NOTARY PUBLIC
ROBINSON TOWNSHIP, ALLEGHENY COUNTY
MY COMMISSION EXPIRES OCTOBER 20, 1986

ATTACHMENT 1

Response to Outstanding Issue 46 of the
Beaver Valley Power Station Unit No. 2
Draft Safety Evaluation Report

Draft SER Section 4.4.4: Loose Parts Monitoring System (excerpt)

In order to complete our review, we will require the following additional information from the applicant:

(1) A description of the monitoring equipment including sensor type and location, data acquisition, recording, and calibration equipment.

Response to (1):

The monitoring equipment consists of piezoelectric transducers located at the ten locations listed below. The accelerometers input through a pre-amplifier to a loose parts monitor. This monitor is a modular, solid state, laboratory grade, data acquisition instrument designed to operate with the remote preamplifiers. The unit is a Unholtz-Dickie model P22MHA-2. Data recording is accomplished by a Hewlett-Packard model 3964A direct recording, four channel, reel-to-reel tape recorder. Calibration will be accomplished with a Babcock and Wilcox Type 1557 vibration calibrator (or equivalent). The LPMS continuously monitors the sensor signals. If a signal indicative of a loose part is detected, this is alarmed (both audibly and visually) and the tape recorder is automatically activated. Thus, an analog tape of the signals is available for later detailed analysis.

Channel	Sensor No. (2RCS-LPM)	Location
1	410	R.V. Bottom Incore Guide Tube
2	411	R.V. Bottom Incore Guide Tube
3	412	R.V. Top Head Stud
4	413	R.V. Top Head Stud
5	408A	Steam Generator "A" Inlet
6	409A	Steam Generator "A" Inlet
7	408B	Steam Generator "B" Inlet
8	409B	Steam Generator "B" Inlet
9	408C	Steam Generator "C" Inlet
10	409C	Steam Generator "C" Inlet

(2) A description of how alert levels will be determined, including sources of internal and external noise, diagnostic procedures used to confirm the presence of a loose part, and precautions to ensure acquisitions of quality data.

Response to (2):

Alert levels will be set in accordance with the vendor's instruction manual to conform to the sensitivity limits of Reg. Guide 1.133. Internal and external noise is accounted for in the extensive pre-

operational (SOV) test program. Based on previous experience, it is anticipated that alert levels will be substantially higher than background noise levels attributable to both internal and external noise sources such that background noise levels will not affect the determination of alert level set points.

The system test provides for taking reference data for the following plant conditions:

a) Quiet background levels just prior to startup prior to Hot Functional Test

b) During single-pump initial start

c) During single-pump steady-state operation

d) During two-pump steady-state operation

e) During three-pump steady-state operation

f) In Mode 5

g) In Mode 3

h) In Mode 2

i) At 25-percent power

j) At 50-percent power

k) At 75-percent power

l) At 100-percent power

m) During control rod drive mechanism (CRDM) motion

In addition, collecting a large amount of data in the test program will provide a significant data-base for reference should an alarm be received during operation. Quality of data will be ensured through normally scheduled system maintenance and training of personnel.

(3) A description of the operation program, including signature analysis during startup, normal containment environment operation, the seismic design, and system sensitivity.

Response to (3):

During operation, the system will be operated in an alert mode such that if an alarm is indicated, the tape recorder will start to record the noise activity. Operating procedures will provide the operating personnel directions on actions to be taken in the event of an alarm. Per the response to (2) above, the initial system testing will include the recording of system signatures in a variety of plant

states for use in referring to normal containment noise levels when assessing an alarm state. As indicated by FSAR Table 1.8-1, the system is not seismically designed. System sensitivity is discussed in FSAR Section 4.4.6.5.

(4) A detailed discussion of the operator training program for operation of the LPMS, planned operating procedures, and record keeping procedures.

Response to (4):

The licensed operator training program for Unit 2 includes a lesson plan on the design and operation of the Loose Parts Monitoring System. The basis for the training material is contained in the Operating Manual for this system. The OM provides a detailed description of the function, major components, instrumentation, precautions and setpoints, operating procedures, and detailed drawings for the system. This manual, along with the alarm response procedure guidelines, is maintained in the control room for operator use and reference at all times.

The operating procedures direct the operator in step-by-step sequence through component startup, normal operation, shutdown, and response to abnormal alarms and conditions. Recorded data will be periodically reviewed and trended for long-term vibration tracking.

(5) A report from the applicant which contains an evaluation of the system for conformance to Regulatory Guide 1.133.

Response to (5):

The statement of system conformity with Regulatory Guide 1.133 is contained in FSAR Table 1.8-1.

(6) A commitment from the applicant to supply, prior to power operation, a report describing operation of the system hardware and implementation of the loose part detection program.

Response to (6):

Operation of the system hardware has been described in the FSAR, in the Operation Manual, and in the response to this open item. The loose parts monitor will be utilized to monitor for loose parts during plant operation.

ATTACHMENT 2

Response to Outstanding Issue 74 of the
Beaver Valley Power Station Unit No. 2
Draft Safety Evaluation Report

Draft SER Section 7.6.2.3: Primary Component Cooling Water Isolation from Reactor Coolant Pump Thermal Barriers

FSAR Section 9.2.2 describes the isolation of the RCP thermal barriers from the primary component cooling water system. A check valve is installed in each inlet cooling water line to the thermal barrier cooling coil, and an air-operated isolation valve is installed in each outlet line. Each isolation valve closes on signals developed from a corresponding line's pressure or flow sensor. Because the FSAR does not provide the design basis for this isolation, the staff is concerned about its safety significance. Therefore, the staff requests that the applicant provide information about the design basis for this system and a discussion on the consequences of either the check valve or the air-operated isolation valve failing to close under conditions related to the design basis. This is an open item.

Response:

The isolation valves in the primary component cooling water (CCW) line to the reactor coolant pump thermal barrier heat exchanger (TBHX) are provided to allow the isolation of that section of pipe should the TBHX fail and RCS fluid enter the component cooling water system. As recommended by Branch Technical Position 3, the design provides for two barriers in this high pressure (RCS) to low pressure (CCW) boundary. Thus, the first barrier is provided by the TBHX and the second barrier is provided by the check and isolation valves. Therefore, an analysis of the consequence of failure is not required.