F

ENCLOSURE

AUG 21 1984

DISTRIBUTION:
Docket File 50-412
METB Docket File
METB Reading File
WPGammill

Docket No. 50-412

MEMORANDUM FOR: George W. Knighton, Chief
Licensing Branch No. 3, DL

FROM: William P. Gammill, Chief
Meteorology and Effluent Treatment Branch, DSI

SUBJECT: APPLICANT'S RESPONSE TO DRAFT SER OPEN ITEMS FOR BEAVER VALLEY POWER STATION, UNIT NO. 2

We have reviewed the applicant's July 30, 1984 response to Outstanding Issue 115 of the subject draft SER. This issue pertains to the adequacy of Category I structures to withstand a snow and ice load of 100 psf. The applicant's response is a justification for using a design roof load, based on the 48-hour Probable Maximum Winter Precipitation of 72 psf, rather than addressing the ability of Category I structures to withstand a snow and ice load of 100 psf. This response is not responsive to the issue set forth in the draft SER. Therefore, we request that the applicant be notified that their response does not resolve Outstanding Issue 115.

Ms. Marilyn Ley was notified of our problem with this response during the week of August 6, 1984. Questions regarding this review should be directed to E. Markee (x27635).

original signed by:
William P. Gammill

William P. Gammill, Chief
Meteorology and Effluent Treatment Branch
Division of Systems Integration

cc: D. Muller
T. Novak
M. Ley
I. Spickler
E. Markee

8408280314 XA

| OFFICE | DSI:RP:METB | DSI:RP:METB | DSI:RP:METB | | | | |
|---|---|---|---|---|---|---|---|
| NAME | EHMarkee:dj | ISpickler | WPGammill | | | | |
| DATE | 08/21/84 | 08/21/84 | 08/21/84 | | | | |

FORM 318 (10-80) NRCM 0240 OFFICIAL RECORD COPY ☆ U.S. GPO 1983—

PLEASE NOTE: THIS LETTER WAS ISSUED ON JULY 27, 1984 WITHOUT A LETTER NUMBER OR DATE. A LETTER NUMBER AND THE DATE ARE NOW BEING ASSIGNED TO THIS CORRESPONDENCE.

Duquesne Light

Nuclear Construction Division
Robinson Plaza, Building 2, Suite 210
Pittsburgh, PA 15205

2NRC-4-112
(412) 787-5141
(412) 923-1960
Telecopy (412) 787-2629

July 30, 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 65 of the Beaver Valley Power Station Unit No. 2 Draft Safety Evaluation Report.

Attachment 2: Response to Outstanding Issue 72 of the Beaver Valley Power Station Unit No. 2 Draft Safety Evaluation Report.

Attachment 3: Response to Outstanding Issue 115 of the Beaver Valley Power Station Unit No. 2 Draft Safety Evaluation Report.

Attachment 4: Response to Outstanding Issue 120 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

8408020019 840730 3PP
PDR ADOCK 05000412
A PDR

SUBSCRIBED AND SWORN TO BEFORE ME THIS 27th DAY OF July, 1984.

Anita Elaine Reiter
Notary Public

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

ATTACHMENT 3

Response to Outstanding Issue 115 of the
Beaver Valley Power Station Unit No. 2
Draft Safety Evaluation Report

Draft SER Section 2.3.1: Regional Climatology (excerpt)

The staff's estimate of the snowpack based on ANSI 58.1-1982, extrapolated from the 50-year return period in the standard to a 100-year return period, produces a weight of near 30 psf. This snowpack weight, when added to the weight produced by the 48-hour probable maximum winter precipitation (about 70 psf) produces a design snowload of 100 psf. This will be an open issue only if the design of the Category I structures cannot accommodate a snowload of 100 psf.

Response:

The information used to arrive at the design roof load for BVPS-2 is based on the direction given in Regulatory Guide 1.70 (R.G. 1.70), "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants," Section 2.3.1.2, which states the following:

> "Provide estimates of the weight of the 100-year return period snowpack and the weight of the 48-hour Probable Maximum Winter Precipitation for the site vicinity. Using the above estimates, provide the weight of snow and ice on the roof of each safety-related structures."

BVPS-2 FSAR Section 2.3.2.1 presents the weight of the 100-year return period snowpack for the site area as 19.5 $lbs/ft^2$, developed from ANSI A58.1-1972. The weight of the 48-hour Probable Maximum Winter Precipitation (PMWP) is presented therein as 71.2 $lbs/ft^2$, developed from Hydrometeorological Report No. 33. A design roof load of 72 $lbs/ft^2$ was chosen for safety-related structures to reflect the 48-hour PMWP as the larger of the two load estimates.

In addition to R. G. 1.70, published Nuclear Regulatory Commission (NRC) guidance on the selection of snow and ice loads for the design of roofs of safety-related structures consists of the following:

1. 10CFR50, Appendix A, General Design Criterion 2.

2. NUREG-0800, Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Section 2.3.1, July 1981.

3. "American National Standard Minimum Design Loads for Buildings and Other Structures," ANSI A58.1-1972 (referenced in NUREG-0800).

The NRC review of this information is described in NUREG-0800, Section 2.3.1, Part III:

> "Snow and ice load adequacy is checked for reasonableness against ANSI A58.1-1972 (Ref. 9) and regional data in available References 5,6 and 7."

References 5, 6, and 7 are National Oceanic and Atmospheric Administration publications containing climatological data from National Weather Service stations.

The water equivalent of the 71.2 lbs/ft$^2$, 48-hour PMWP is 13.7 inches. Since this is far greater than twice the record 24-hour precipitation total for any time of the year at Pittsburgh (8 inches), the use of this information meets the intent of the guidelines.

In addition, NUREG-0800, Section 2.3.1, Part II, indicates that meteorological design information is acceptable if it meets the requirements of 10CFR50, Appendix A, General Design Criterion (GDC) 2, which includes:

> "Appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated."

The design snow load of 72 lbs/ft$^2$ based on the 48-hour PMWP is more than 3.5 times the weight of the snowpack which is expected to occur once in 100 years based on historical data in the site area. This load clearly provides "sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated: as stated in 10CFR50, Appendix A, GDC #2. Likewise, the 48-hour PMWP itself meets the intent of GDC #2 by being more than 1.5 times larger than the record monthly precipitation total for any time of the year at Pittsburgh (8.2 inches).

If the more recent snow load information given in ANSI A58.1-1982 is used for the BVPS-2 design, there is no change in the maximum load. Based on ANSI A58.1-1982, the weight of the 100-year return period snowpack at BVPS-2 should be approximately 30 lbs/ft$^2$. The design value of 72 lbs/ft$^2$ is still larger than this updated snowpack load (by a factor of 2.4). Even if rain on top of the 100-year snowpack is considered, ANSI A58.1-1982 recommends adding only 5 lbs/ft$^2$, resulting in a total weight of 35 lbs/ft$^2$. The design snow load would be equalled only if the record monthly precipitation total for Pittsburgh for any time of the year (8.2 inches) were assumed to be completely absorbed by the 100-year return period snowpack (30 lbs/ft$^2$ or approximately 6 inches of water) without melting or runoff. Therefore, the BVPS-2 design snow load clearly meets the intent of NRC regulations.