



Duquesne Light

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November 8, 1984

United States Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Mr. Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

SUBJECT: Beaver Valley Power Station - Unit No. 2
Docket No. 50-412
Identification of Backfit Requirement Number 29

Gentlemen:

In Draft Safety Evaluation Report Section 2.3.4 (attached), the NRC identified that the applicant underestimated atmospheric dispersion conditions at the Exclusion Area Boundary (EAB) for assessments of the consequences of radioactive releases for design basis accidents in accordance with the requirements of 10CFR100.

The BVPS-2 atmospheric dispersion conditions at the EAB were calculated using the guidance of R.G. 1.145. In subsequent conversations with the NRC staff on August 15, 20, 23, and September 19, and in a meeting at the NRC on September 24, 1984, the methodology and information (data) used to calculate atmospheric dispersion conditions were discussed. At the September 24, 1984 meeting, the following areas were identified as being the possible reasons for the differences in the X/Q values calculated:

1. Meteorological data used by the staff was not the correct data.
2. Distance to the EAB used by the staff was incorrect.
3. The staff's interpretation of the smooth curve used to form an upper bound of computed points as described in R.G. 1.145, Section 2.1.1 is overly conservative.

Subsequent to the September 24, 1984 meeting, the applicant has submitted to the staff the "correct meteorological data" and "distance to the EAB" to be used in their X/Q calculations. The staff has recalculated the X/Q value using the meteorology data, but has not used the correct distance to the EAB. On November 2, 1984, the staff informed the applicant that the X/Q's would not be recalculated because it is the staff's opinion that the X/Q values would not be low enough to give sufficient margin in calculating dose projections at the EAB and that the applicant should use other methods (extend EAB in northwest sector) to reduce the X/Q values.

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DLC has:

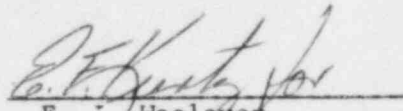
1. Calculated the X/Q values using the guidance of R.G. 1.145 with resultant dose projection values less than 10CFR100 requirements.
2. Calculated the X/Q values using the more conservative straight line method (PAVAN Code) with resultant dose projections less than 10CFR100 requirements.
3. Ran the NRC test case for the PAVAN Code as described in NUREG/CR-2858 to demonstrate proper functioning and use of the computer program.

Since in the above cases (1 and 2), the doses were less than 10CFR100 requirements, there appears to be no regulatory basis requiring a change to the EAB to achieve even lower doses. Therefore, unless the basis for this new requirement can be demonstrated as an existing regulation, the controls of 10CFR50.109, GNLR 84-08, and NRC Manual Chapter 0514 identify the requirement as a backfit.

DLC requests that the proposed requirement be submitted to NRC management for approval in accordance with the Office of Nuclear Reactor Regulation (NRR) procedure for management of plant specific backfitting, prior to transmittal as a licensing requirement.

DUQUESNE LIGHT COMPANY

By


E. J. Woolever
Vice President

TJZ/nml
Attachment

cc: Mr. H. R. Denton, Director (NRR) (w/a)
Mr. G. W. Knighton, Chief (w/a)
Mr. B. K. Singh, Project Manager (w/a)
Mr. G. Walton, NRC Resident Inspector (w/a)

contained in Section 2.3.3 of the Standard Review Plan. Although the applicant maintains that the current instrumentation and data reduction procedures conform to the recommendations of Regulatory Guide 1.23, "Onsite Meteorological Programs," the staff is concerned about the representativeness of the data collected at the new tower location. The current meteorological measurements program has provided data to represent onsite meteorological conditions as required in 10 CFR Part 100.10; however, the staff is continuing its evaluation of the adequacy of the proposed upgrades to the program. Nevertheless, the staff concludes that the historical site data provide a reasonable basis for making preliminary estimates of atmospheric dispersion conditions for estimating consequences of design basis accident and routine releases from the plant.

2.3.4

Short-Term (Accident) Diffusion Estimates

To audit the applicant's estimates, the staff has performed an independent, preliminary assessment of short-term (less than 30 days) accidental releases from buildings and vents using the direction-dependent atmospheric dispersion model described in Regulatory

Guide 1.145, "Atmospheric Dispersion Models for Potential Accident-Consequence Assessments at Nuclear Power Plants," with consideration of increased lateral dispersion during stable conditions accompanied by low wind speeds. Five years (January 1977-December 1981) of onsite data available to the staff on magnetic tape, which had 92% data recovery, were used for this evaluation. Wind speed and wind direction data were based on measurements at the 10.7 m level and atmospheric stability was defined by the vertical temperature gradient measured between the 45.7 m and 10.7 m levels. A ground-level release with a building wake factor, cA , of 800 m^2 was assumed. The relative concentration (X/Q) for the 0-2 hour time period was determined to be $2.4 \times 10^{-3} \text{ sec/m}^3$ at an exclusion area boundary distance of 455 m in the northwest sector. The X/Q values for appropriate time periods at the outer boundary of the low population zone (5800 m) are:

<u>Time Period</u>	<u>X/Q (sec/m^3)</u>
0-8 hours	8.1×10^{-5}
8-24 hours	5.7×10^{-5}
1-4 days	2.6×10^{-5}
4-30 days	8.8×10^{-6}

The applicant has calculated a lower (about 40%) X/Q value for the 0-2 hour time period at the exclusion area boundary than that calculated by the staff. The X/Q values calculated by the applicant for the various time periods at the LPZ distance within 15% of those calculated by the staff. These small differences may be attributed primarily to different periods of meteorological data record used by the staff and the applicant.

Based on the above preliminary evaluation performed in accordance with the criteria contained in Section 2.3.4 of the Standard Review Plan, the staff concludes that the applicant has underestimated atmospheric dispersion conditions at the exclusion area boundary for assessments of the consequences of radioactive releases for design basis accidents in accordance with the requirements of 10 CFR Part 100.11. The atmospheric dispersion estimates provided above which were independently calculated by the staff have been used by the staff in an independent preliminary assessment of the consequences of radioactive releases for design basis accidents.