FEB 5 1985

Docket No. 50-412

Mr. E. J. Woolever, Vice President
Duquesne Light Company
Robinson Plaza Building No. 2, Suite 210
Pa Route 60
Pittsburgh, Pennsylvania 15205

Dear Mr. Woolever:

Subject: Backfit Items for Beaver Valley, Unit No. 2

By letter dated November 8, 1984, you identified the following six (6) backfit items in addition to nine (9) backfit items identified in your letter dated October 11, 1984:

1. Underestimation of Atmospheric Dispersion Conditions
2. Application of GDC5 to Communication Systems
3. Application of GDC2 and GDC4 to Communication Systems
4. Application of GDC4 to Lighting Systems
5. Illumination Levels in Excess of SRP Criteria
6. Application of R.G. 1.26 to Areas Excluded by R.G. 1.26

Enclosed for your review and preparation for a meeting with our staff is a description of the requirements and the basis for implementing the requirements. We are prepared to hold the backfit appeal meetings on these items at your earliest convenience.

Based on discussions we have had with your staff, it is our understanding that the Exclusion Area Boundary (10 CFR 100) for Unit 2 can be extended in the westerly direction (WSW, W and WNW) to a distance consistent with the exclusion boundary for Unit 1. If this is done, and submitted to us on the docket, the staff assessed value for the appropriate X/Q will be based on data in the NW section and will likely result in a short term LOCA accident dose which does not exceed the 300 Rem limit specified by 10 CFR Part 100. Therefore, this should provide the basis for the staff withdrawing their position on this matter.

Also, based on our discussions we have had with your staff, it is our understanding that verbal information provided by DLC on the sharing of communication systems (GDC 5) should provide a basis for the withdrawal of the staff position provided the information is docketed.

If you have any questions, please contact the Beaver Valley Project Manager, Mr. B. K. Singh at 301-492-8423.

Sincerely,

ORIGINAL SIGNED BY

George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing

Enclosure:
As stated

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Docket File 50-412
NRC PDR
LPDR
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PRC System
LB#3 Reading
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VNerses
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Attorney, OELD
NGrace
EJordan
ACRS (16)

* DL:LB#3	* DL:LB#3	DL:LB#3
VNerses/yt	BKSingh	GWKnighton
1/ /85	1/ /85	2/5/85

* See next page

Also, based on our discussions we have had with your staff, it is our understanding that information provided by DLC on the application of GDC 5 to communication systems should provide a basis for the withdrawal of the staff position provided the information is docketed.

If you have any questions, please contact the Beaver Valley Project Manager, Mr. B. K. Singh at 301-492-8423.

Sincerely,

George W. Knighton, Chief
Licensing Branch No. 3
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1/24/85	1/29/85	2/4/85

1. Underestimation of Atmospheric Dispersion Conditions

The analysis of design basis accidents typically involves a set of assumptions that are explicitly intended to bound the physical consequences of a class of similar accident sequences since it is not possible to analyze all possible sequences. In this manner, a judgment is made of no undue risk to the public. The assumptions used for the most part are conservative, although they also make the analysis highly stylized and unreal. Such conservatisms, however, are a part of the Commission's long standing policy of defense in depth. The assumptions and methodology to be used are identified in the References to the regulations which include 10 CFR 50.2(u); 10 CFR 50, Appendix A, General Design Criteria 2(2), 41, 42 and 43; and 10 CFR 100.11(a)(1). References to Regulatory Guides include numbers 1.4, 1.23 1.77 ANSI Standard 56.5-1979, and 1.145. Standard Review Plan (NUREG-0800) and FSAR references include Sections 2.3.4, 6.5.6 and 15.6.5.

The Beaver Valley, Unit 2 FSAR contains the applicant's accident analyses. These analyses include a number of assumptions that generally conform to all the references but one. The exception is the assessment of atmospheric diffusion conditions. For this assessment, both the applicant and the staff report the use of the same guidance (Reg. Guide 1.145), and five years of onsite data. The staff also used a building wake factor of 800 m^2 and longer exclusion area boundary distances than described by the applicant.

Two analyses are in question; one relating to the so-called design basis radiological Loss-of-Coolant Accident, one to the rod ejection accident. In both cases, the primary area of disagreement is atmospheric diffusion parameter estimates. In addition, there is a difference of opinion on the fuel assembly peaking factor used in the rod ejection accident analysis.

The application of regulatory practice to the review of Beaver Valley Unit 2 has been assessed by the staff as totally consistent with the review of all other near term operating license evaluations. That is, no backfitting has been attempted.

The applicant is required to provide an analysis consistent with the above references that demonstrates that the combination of engineered safety features, meteorology and distances to the Exclusion Area Boundary (EAB) and outer boundary of the Low Population Zone (LPZ) are sufficient to prevent 2 hour doses at the EAB or 30 day doses at the LPZ to an individual from exceeding 300 rem thyroid or 25 rem whole body in the event of a substantial meltdown of the core with subsequent release of appreciable quantities of fission products, or that a rod ejection accident will produce doses that are well within (25 percent) of those stated above.

The staff is unable to find that the applicant's proposed operation will meet the regulations with respect to the radiological consequences of accidents within the design basis. Such a finding is a keystone to an overall finding of no unacceptable public health and safety risk.

2. Application of GDC 5 to Communication Systems

Standard Review Plan (SRP) 9.5.2 "Communication Systems" requires a capability of the system to provide effective intraplant communications and effective plant-to-offsite communications during normal plant operations and during transients, fire, and accident conditions, including loss of offsite power. The SRP further states "the communication system is acceptable if the integrated design of the system will provide effective communication between plant personnel in all vital areas during normal plant operation and during the full spectrum of accident or incident conditions (including fire) under maximum potential noise level."

Adequate communications must be provided in safety related areas to assure that the operator can perform necessary safety functions in both Units 1 and 2 for postulated event stated in GDC 5.

The applicant has not provided enough information in the FSAR or its amendment so that we can conclude that in the event of a failure in the shared part of the system he will have adequate communications to perform necessary safety functions in both Units 1 and 2 for postulated event stated in GDC 5.

Without adequate communications in necessary safety related areas under a postulated event in both Units 1 and 2, it cannot be concluded that the necessary safety functions can be adequately performed.

3. Application of GDC 2 and GDC 4 to Communication Systems

GDC 2 states in part "Structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena.. ...without loss of capability to perform their safety functions."

GDC 4 states in part "Structures, systems and components important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing and postulated accidents including loss-of-coolant accident."

Standard Review Plan (SRP) 9.5.2 "Communication Systems" requires a capability of the system to provide effective intraplant communications and effective plant-to-offsite communications during normal plant operations and during transients, fire, and accident conditions, including loss of offsite power. The SRP further states "the communication system is acceptable if the integrated design of the system will provide effective communication between plant personnel in all vital areas during normal plant operation and during the full spectrum of accident or incident conditions (including fire) under maximum potential noise level."

Adequate communications must be provided in safety related areas to assure that the operator can perform necessary safety functions for any given Design Basis Event (DBE).

The applicant has not provided enough information in the FSAR or its amendment so that we can conclude that he will have adequate communications to perform necessary safety functions for any given DBE.

Without adequate communciations in safety related areas under any given DBE, it cannot be concluded that the necessary safety functions be adequately performed.

4. Application of GDC 4 to Lighting Systems

GDC 4 states in part "Structures, systems and components important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing and postulated accidents including loss-of-coolant accidents."

SRP 9.5.3 "Lighting Systems" requires the lighting systems to meet the following: "(1) a capability of the normal lighting system(s) to provide adequate lighting during all plant operating conditions, and (2) a capability of the emergency lighting system to provide adequate lighting during all plant operating conditions, including fire, transients and accident conditions, and the effect of loss-of-offsite power on the emergency lighting system."

Adequate lighting must be provided in safety related areas and access and egress areas to assure that the operator can perform necessary safety functions for any given Design Basis Event (DBE).

The applicant has not provided enough information in the FSAR or its amendment so that we can conclude that he will have adequate lighting to perform necessary safety functions for any given DBE.

Without adequate lighting in safety related areas under any given DBE, it cannot be concluded that the necessary safety functions can be adequately performed.

5. Illumination Levels in Excess of SRP Criteria

SRP 9.5.3 "Lighting Systems" requires the lighting systems to meet the following: "(1) a capability of the normal lighting system(s) to provide adequate lighting during all plant operating conditions, and (2) a capability of the emergency lighting system to provide adequate lighting during all plant operating conditions, including fire, transients and accident conditions, and the effect of loss-of-offsite power on the emergency lighting system."

SRP 9.5.3 also states "the lighting systems designs will be acceptable if they conform to the Illuminating Engineering Society (IES) Lighting Handbook as related to systems design and illumination levels recommended for industrial facilities."

The applicant has applied the Emergency Lighting Section of the IES Handbook dealing only with escape routes, while the staff's concern is adequate illumination for operation in safety related areas and adequate illumination for safe access and egress routes to those areas.

Activity levels in safety related, access and egress areas defined by the applicant and appropriate illumination levels for these areas should be provided to conform with the IES Handbook.

Minimum illumination level for emergency operation of controls or equipment is given in Figure 2-2, of IES Handbook and minimum illumination levels for safety lighting is given in Figure 2-6 of the IES Handbook.

Adequate illumination levels must be provided in safety related areas and access and egress to these areas to enable operator to perform necessary safety functions for any given Design Basis Event (DBE).

The applicant has not provided enough information in the FSAR or its amendment so that we can conclude that he will have adequate illumination levels to perform necessary safety functions for any given DBE.

Without adequate illumination levels in necessary safety related areas under any given DBE, it cannot be concluded that the necessary safety functions can be adequately performed.

6. Application of R.G. 1.26 to Areas Excluded by R.G. 1.26

GDC 17 "Electric Power Systems" states in part "an onsite electric power system....shall be provided to permit functioning of structures, systems and components important to safety. The safety function.....shall be to provide sufficient capacity and capability to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences, and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents."

Regulatory Guide 1.26 "Quality Group Classifications and Standards for Water, Steam and Radioactive Waste-Containing Components of Nuclear Power Plants" excludes, among others, such systems as the diesel engines and generators, and auxiliary support systems, i.e., diesel fuel, starting air, lube oil, and air intake and exhaust systems. However, the diesel

engine cooling water system is covered by this guide. These auxiliary systems excluded from the R.G 1.26 and their components mounted on and furnished with the diesel engine perform safety related functions in support of safety related onsite electric power system functions stipulated in GDC 17. To assure that the diesel engine will perform its safety function it is necessary that these support systems and their engine mounted counterparts be designed to seismic Category I, and ASME Section III, Quality Group C requirements or equivalent.

The engine mounted piping and components should be designed to assure diesel engine performance under any given Design Basis Event (DBE).

The applicant has not provided assurance that the engine mounted piping will enable the diesel engine to perform its safety function under any given DBE.

Without adequately designed engine mounted piping and components, the engine cannot perform its safety function under any given DBE.