



Duquesne Light

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March 20, 1985

United States Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Mr. Hugh L. Thompson, Jr., Director
Division of Licensing
Office of Nuclear Reactor Regulation

SUBJECT: Beaver Valley Power Station - Unit No. 2
Docket No. 50-412
Duquesne Light Company Backfits

REFERENCES: (1) NRC letter (G. W. Knighton to E. J. Woolever) dated 2/5/85
(2) NRC letter (G. W. Knighton to E. J. Woolever) dated 1/10/85
(3) DLC letter 2NRC-5-003 dated 1/8/85
(4) NRC letter (G. W. Knighton to E. J. Woolever) dated 2/13/85
(5) DLC letter 2NRC-5-038 dated 3/5/85
(6) DLC letter 2NRC-5-015 dated 2/1/85
(7) DLC letter 2NRC-5-025 dated 2/14/85
(8) DLC letter 2NRC-5-019 dated 2/11/85

Gentlemen:

In a recent letter (Reference 1), the NRC transmitted to Duquesne Light Company (DLC) a brief discussion of six backfit requirements which the NRC staff intends to impose on Beaver Valley Power Station - Unit 2 (BVPS-2).

Attachments to this letter provide the following:

- (1) DLC positions with respect to the staff positions transmitted in Reference 1 (Attachments 1 through 6)
- (2) Proposed schedule for appeal meetings on unresolved backfit issues (Attachment 7)
- (3) List of those issues on which the NRC and DLC have reached agreement (Attachment 8)

DLC has not provided responses to the staff's positions on two of the issues scheduled for appeal meetings in Attachment 7. The position statement/appeal request for "4th Steam Generator Level Channel" issue will be transmitted to the NRC in approximately one week. The position on "Air Dryers for Emergency Diesel Generators" will be delayed until DLC receipt of additional information from contractors/suppliers. This information should be available to DLC within 3-4 weeks.

DLC, as evidenced in Attachments 1 through 6, perceives the need for further clarification of several requirements and their justification in

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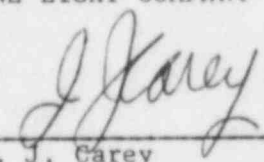
order to facilitate meaningful appeal meetings. NRR has developed a very workable procedure to implement the requirements of NRC Manual Chapter 0514. We believe NRR's procedure intends that the appeal meetings provide a forum for evaluating the postulated increase in plant safety to determine whether the new requirement should be imposed. Without an outline of the rationale by which the staff concluded that the proposed requirement is necessary to achieve an acceptable level of safety, DLC is unable to formulate and submit the well-defined position which is requisite to productive discussion of these issues.

In spite of these concerns, DLC shares the staff's desire to resolve the backfit issues promptly. DLC, therefore, agrees that the meetings should be scheduled. In order to facilitate the preparation required for the appeal meetings, DLC requests that the major points of the staff's basis (improvement to safety) be included in the agendas for the meetings, and that the agendas be provided to DLC at least one week prior to each meeting.

My staff is available, as required, to expedite the resolution of these issues.

DUQUESNE LIGHT COMPANY

By


J. J. Carey
Vice President

RW/wjs
Attachments

cc: Mr. S. Chesnut, Technical Assistant (w/a)
Mr. M. Clausen, Technical Assistant (w/a)
Mr. H. Denton, Director NRR (w/a)
Mr. V. Nerses, Project Manager (w/a)
Mr. T. Novak, Assistant Director (w/a)
Mr. B. K. Singh, Project Manager (w/a)
Mr. V. Stello, DEDROGR (w/a)
Mr. J. Tourtellotte, Chairman RRTF (w/a)
Mr. G. Walton, NRC Resident Inspector (w/a)

Underestimation of Atmospheric
ISSUE: Dispersion Conditions

BACKFIT ISSUE NO.: _____

ATTACHMENT 1 PAGE 1 OF 1
TO DLC RESPONSE
TO NRC LETTER DATED 02/05/85

DLC BACKFIT NO.: 29

11/08/84 Backfit Identified	02/05/84 NRC Rqmnts Letter	Appeal Filed	Position Statement Submitted	Meeting Agenda Issued	First Appeal Meeting	Minutes & Decision Issued	Second Appeal Requested	Meeting Agenda Issued	Second Appeal Meeting	Minutes & Decision Issued	Formal Appeal Request to Dir, NRR
			NRC POSITION			DLC POSITION			COMMENTS		
PROPOSED REQUIREMENTS	<p>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 m² and longer exclusion area boundary distances than described by the applicant.</p> <p>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.</p> <p>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, so that a rod ejection accident will produce doses that are well within (75 percent) of those stated above.</p> <p>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 in an overall finding of no unacceptable public health and safety risk.</p>			<p>DLC has provided additional information concerning atmospheric diffusion parameter estimates (letter nos. 2NRC-5-015, dated February 1, 1985, and 2NRC-5-025, dated February 14, 1985). It is the applicant's understanding that after review of this additional information by the staff, this item will be closed.</p>							
HOW PROPOSED REQUIREMENT WOULD IMPROVE SAFETY	Not provided.			See above.							
RELATION OF NEW REQUIRE- MENT TO EXISTING REGULATORY POSITIONS	<p>The analysis of design basis accident, 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 50.71(f); 10 CFR 50, Appendix A, General Design Criteria 2(f), 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 7.3.4, 6.5.6 and 15.6.5.</p> <p>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.</p>			No comment.							
SUGGESTED TIME FOR IMPLEMENTA- TION	Not provided.			No comment.							

11/08/84 Backfit Identified	02/05/85 NRC Request Letter	Appeal Filed	Position Statement Submitted	Meeting Agenda Issued	First Appeal Meeting	Minutes & Decision Issued	Second Appeal Requested	Meeting Agenda Issued	Second Appeal Meeting	Minutes & Decision Issued	Formal Appeal Request to Dir, NRR
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	NRC POSITION	DLC POSITION	COMMENTS
PROPOSED REQUIREMENTS	<p>Adequate communications must be provided in safety related areas to ensure that the operator can perform necessary safety functions in both Units 1 and 2 for postulated event stated in GDC 5.</p> <p>The applicant has not provided enough information in the PSAR 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.</p> <p>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.</p>	<p>SRP 9.5.2 states, "There are no general design criteria or regulatory guides that directly apply to the safety-related performance requirements for the communication system."</p> <p>Detail in excess of SRP 9.5.2 guidance has been provided to the reviewer.</p> <p>Postulation of simultaneous events in Units 1 & 2 exceeds GDC-5.</p>	GDC 5 states, "... accident in one unit, an orderly shutdown and cooldown of the remaining units."
HOW PROPOSED REQUIREMENT WOULD IMPROVE SAFETY	Not provided.	The staff has not demonstrated that application of GDC-5, together with postulation of simultaneous accidents, is required to achieve an acceptable level of safety.	
RELATION OF NEW REQUIREMENT TO EXISTING REGULATORY POSITIONS	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 final under maximum potential release level)."	No comment.	
SUGGESTED TIME FOR IMPLEMENTATION	Not provided.	No comment.	

Application of GDC 2 and GDC 4
ISSUE: to Communication Systems

BACKFIT ISSUE NO.: _____

ATTACHMENT 3 PAGE 1 OF 1
TO DLC RESPONSE
TO NRC LETTER DATED 02/05/85

DLC BACKFIT NO.: 23

11/08/84 Backfit Identified	02/05/85 NRC Rqmnts Letter	Appeal Filed	Position Statement Submitted	Meeting Agenda Issued	First Appeal Meeting	Minutes & Decision Issued	Second Appeal Requested	Meeting Agenda Issued	Second Appeal Meeting	Minutes & Decision Issued	Formal Appeal Request to Dir, NRR
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	NRC POSITION	DLC POSITION	COMMENTS
PROPOSED REQUIREMENTS	<p>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."</p> <p>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."</p> <p>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).</p> <p>The applicant has not provided enough information in the PSAR or its amendment so that we can conclude that he will have adequate communications to perform necessary safety functions for any given DBE.</p> <p>Without adequate communications in safety related areas under any given DBE, it cannot be concluded that the necessary safety functions be adequately performed.</p>	<p>SRP 9.5.2 states, "There are no general design criteria or regulatory guides that directly apply to the safety-related performance requirements for the communication system."</p> <p>Neither "adequate communications" nor "enough information" clearly define the scope of this requirement.</p>	
HOW PROPOSED REQUIREMENT WOULD IMPROVE SAFETY	Not provided.	The staff has not demonstrated that application of GDC 2 and GDC 4 is required to achieve an acceptable level of safety.	
RELATION OF NEW REQUIREMENT TO EXISTING REGULATORY POSITIONS	<p>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 operation 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 time) under maximum potential noise level."</p>	No comment.	
SUGGESTED TIME FOR IMPLEMENTATION	Not provided.	No comment.	

ISSUE: Application of GDC 4 to Lighting Systems

BACKFIT ISSUE NO.: _____

ATTACHMENT 4 PAGE 1 OF 1
TO DLC RESPONSE
TO NRC LETTER DATED 02/05/85

DLC BACKFIT NO.: 25

11/08/84 Backfit Identified	02/05/85 NRC Rqmnts Letter	Appeal Filed	Position Statement Submitted	Meeting Agenda Issued	First Appeal Meeting	Minutes & Decision Issued	Second Appeal Requested	Meeting Agenda Issued	Second Appeal Meeting	Minutes & Decision Issued	Formal Appeal Request to Dir, NRR
	NRC POSITION				DLC POSITION				COMMENTS		
PROPOSED REQUIREMENTS	<p>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."</p> <p>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).</p> <p>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.</p> <p>Without adequate lighting in safety related areas under any given DBE, it cannot be concluded that the necessary safety functions can be adequately performed.</p>				<p>SRP 9.5.3 states, "There are no general design criteria or regulatory guides that directly apply to the safety-related performance requirements for the lighting system."</p> <p>Neither "adequate lighting" nor "enough information" clearly define the scope of this requirement. Extensive detail of the BVPS-2 lighting system has been provided to the reviewer.</p>						
HOW PROPOSED REQUIREMENT WOULD IMPROVE SAFETY	Not provided.				The staff has not demonstrated that application of GDC 4 is required to achieve an acceptable level of safety.						
RELATION OF NEW REQUIRE- MENT TO EXISTING REGULATORY POSITIONS	<p>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."</p>				No comment.						
SUGGESTED TIME FOR IMPLEMENTA- TION					No comment.						

ISSUE: Illumination Levels in Excess of SRP Criteria

BACKFIT ISSUE NO.: _____

ATTACHMENT 5 PAGE 1 OF 1
TO DLC RESPONSE
TO NRC LETTER DATED 02/05/85

DLC BACKFIT NO.: 26

<u>11/08/84</u> <u>Backfit</u> <u>Identified</u>	<u>02/05/85</u> <u>NRC Rqmnts</u> <u>Letter</u>	<u>Appeal</u> <u>Filed</u>	<u>Position</u> <u>Statement</u> <u>Submitted</u>	<u>Meeting</u> <u>Agenda</u> <u>Issued</u>	<u>First</u> <u>Appeal</u> <u>Meeting</u>	<u>Minutes &</u> <u>Decision</u> <u>Issued</u>	<u>Second</u> <u>Appeal</u> <u>Requested</u>	<u>Meeting</u> <u>Agenda</u> <u>Issued</u>	<u>Second</u> <u>Appeal</u> <u>Meeting</u>	<u>Minutes &</u> <u>Decision</u> <u>Issued</u>	<u>Formal</u> <u>Appeal</u> <u>Request to</u> <u>Dir, NRR</u>
			NRC POSITION			DLC POSITION			COMMENTS		
PROPOSED REQUIREMENTS			<p>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.</p> <p>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.</p> <p>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.</p> <p>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 (DRE).</p> <p>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 DRE.</p> <p>Without adequate illumination levels in necessary safety related areas under any given DRE, it cannot be concluded that the necessary safety functions can be adequately performed.</p>			<p>DLC has addressed illumination levels in areas required for control of safe shutdown operations as well as access and egress in response to Question 430.65.</p> <p>BVPS-2 lighting design fully conforms to the IES handbook recommendations.</p> <p>Figure 2-2 provides nominal minimum, average maintained illumination levels. Figure 2-6 provides absolute minimum illumination levels available at the location of the hazard.</p> <p>DLC has fully addressed NRC questions related to illumination levels and Regulatory Guide 1.70.</p> <p>Illumination levels in accordance with the IES handbook have been provided and assure that necessary safety functions can be adequately performed.</p>					
HOW PROPOSED REQUIREMENT WOULD IMPROVE SAFETY	Not provided.					The staff has not demonstrated that increased illumination levels are required to achieve an acceptable level of safety.					
RELATION OF NEW REQUIREMENT TO EXISTING REGULATORY POSITIONS			<p>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."</p> <p>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."</p>			No comment.					
SUGGESTED TIME FOR IMPLEMENTATION	Not provided.					No comment.					

11/08/84 Backfit Identified	02/05/85 NRC Rqmnts Letter	Appeal Filed	Position Statement Submitted	Meeting Agenda Issued	First Appeal Meeting	Minutes & Decision Issued	Second Appeal Requested	Meeting Agenda Issued	Second Appeal Meeting	Minutes & Decision Issued	Formal Appeal Request to Dir, NRR
			NRC POSITION			DLC POSITION			COMMENTS		
PROPOSED REQUIREMENTS			<p>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 engine 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.</p> <p>The engine mounted piping and components should be designed to assure diesel engine performance under any given Design Basis Event (DBE).</p> <p>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.</p> <p>Without adequately designed engine mounted piping and components, the engine cannot perform its safety function under any given DBE.</p>			<p>R.G. 1.26 provides guidance of application of ASME III Codes to equipment not covered by 10CFR 50.55(a). R.G. 1.26 specifically addresses diesel cooling water and specifically excludes the diesel engines, generators, and support systems. Since the NRC intentionally excluded these components from its guidance for application of ASME III, it is reasonable to infer that the Commission did not intend that ASME III be applied to diesel systems other than cooling water. SRPs 9.5.4, 9.5.5, 9.5.6, and 9.5.7 list R.G. 1.9, IEEE 387, and DEMA Standards as guidance used in determining compliance of the design with GDC 17, however, none of these SRPs indicate that R.G. 1.26 should be applied. The guidance of R.G. 1.9, IEEE 387, and DEMA Standards has been used in the design and fabrication of the BV-2 diesels and support systems. GDC 17 lists three specific criteria for the onsite power supplies: (1) Independence; (2) Redundancy; (3) Testability. It is DLC's position that neither R.G. 1.26 nor ASME III is appropriate for determination of compliance with any of the three criteria of GDC 17.</p>					
HOW PROPOSED REQUIREMENT WOULD IMPROVE SAFETY			Not provided.			The staff has not demonstrated that the application of R.G. 1.26 to diesel piping is required to achieve an acceptable level of safety.					
RELATION OF NEW REQUIRE- MENT TO EXISTING REGULATORY POSITIONS			<p>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."</p>			The BV-2 emergency diesel systems conform to GDC 17.					
SUGGESTED TIME FOR IMPLEMENTA- TION			Not provided.			No comment.					

Proposed Backfit Appeal Schedule

<u>Week of</u>	<u>Issue</u>
3/25-3/29	Probable Maximum Precipitation
4/1-4/5	4th Steam Generator Level Channel
4/15-4/19	Application of GDC 2 and GDC 4 to Communication Systems
4/15-4/19	Application of GDC 4 to Lighting Systems
4/29-5/3	Illumination Levels in Excess of SRP Criteria
5/13-5/17	Application of R.G. 1.26 to Areas Excluded by R.G. 1.26
5/27-5/31	Air Dryers for Emergency Diesel Generators

Resolved Backfit Issues

The following backfits have not been included in the proposed appeal meeting schedule:

1. Motor Operated Accumulator Isolation Valves (withdrawn by Reference 2)
2. Rocker Arm Lube Oil Reservoir Alarm (withdrawn by Reference 2)
3. Spent Fuel Pool Heat Loads (Reference 2 indicated that this issue would be withdrawn upon docketing of information docketed by Reference 3)
4. Diesel Lube Oil Fill Procedure (withdrawn by Reference 2)
5. 1E Power for Lighting and Communications (satisfactory resolution indicated by Reference 4)
6. Application of GDC 5 to Communication Systems (Reference 1 indicated that this issue would be withdrawn upon docketing of information docketed by Reference 5)
7. Atmospheric Dispersion Calculations (Reference 1 indicated that docketing of information provided in References 6 and 7 should provide basis for withdrawal of this issue)
8. Roof Snow Loading (NRC indicated at meeting with DLC on January 15, 1985, that information later docketed in Reference 8 appeared to resolve this issue)