

JAN 30 1985

Docket No.: 50-412

APPLICANT: Duquesne Light Company (DLC)

FACILITY: Beaver Valley Power Station, Unit 2

SUBJECT: TRIP REPORT - FIRE PROTECTION

On December 5, 1984, NRC staff met with the applicant at the site to obtain additional information to aid in the resolution of the open item concerning the use of the CO₂ extinguishing system without a fixed water suppression system backup in the cable spreading room. As a result of the meeting, the staff expressed a number of concerns pertaining to other fire protection items. An attendance roster and a summary of the trip report are enclosed (Enclosures 1 and 2 respectively).

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Enclosures:
As stated

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Enclosure 2

Chemical Engineering Branch/Fire Protection Section
Fire Protection Trip Report
Beaver Valley Power Station Unit No. 2
Docket No. 50-412

Introduction

On December 5, 1984, we met with the applicant at the site to obtain additional information to aid in the resolution of the open item concerning the use of a CO₂ extinguishing system without a fixed water suppression system backup in the cable spreading room. As a result of the meeting, we expressed a number of concerns pertaining to other fire protection items. The applicant agreed to provide written responses to resolve these concerns. The concerns are summarized as follows:

1. In our SER, we indicated that the CO₂ extinguishing systems have been installed in accordance with NFPA 12. During our site visit, we observed manual release stations and fire alarm control panels which may not be listed for use with the CO₂ extinguishing systems. The applicant should provide verification that all components of the CO₂ extinguishing systems are listed for use with CO₂ systems.
2. We have several concerns with the use of a CO₂ extinguishing system without a fixed water suppression system backup in the cable spreading room:
 - A. CO₂ does not remove heat adequately
 1. Deep seated fire, especially with cables in the vertical configuration
 2. Hot gas layer, CO₂ being heavier than air, and cables located near ceiling
 3. If door is opened before the necessary heat is dissipated, the fire may rekindle - the pyrolites may explode

B. Toxicity

1. Effects of inadvertent operation on operators
2. Consequences of leakage to adjacent areas through deteriorated fire stops

C. Design

1. The cold CO₂ impinging on cables may deteriorate the insulation
2. Consequences of excessive pressure if pressure relief panels do not work as designed
3. Effects of expected overpressure on fire seals
4. Consequences of multi releases due to seismic events
5. Consequences of electrical shorts created by an extended fire

D. Availability

1. Lack of availability because CO₂ system is disabled during maintenance, when probability of fires is greatest.
2. Number of LER's on CO₂ systems found disarmed. ---
3. Poor record on "acceptance testing" of CO₂ systems.

E. Record

1. Browns Ferry fire lessons learned (NUREG-0050) "It is obvious that the longer a fire burns, the more damage it will do. The Browns Ferry fire shows that prompt extinguishing of a fire is, in most circumstances, also the way to limit the consequences of a fire on public safety. The Review Group recommends that serious consideration be given to installing or upgrading fixed water sprinkler systems, and to make them automatic. This is especially important in areas containing a high density of cables or other flammable materials, where there is a combination of flammable materials and redundant safety equipment or where safety equipment is located and where access for fire fighting should be considered in the design and procedures."

2. NRC Guidelines

Our guidelines reflect the recommendations of NUREG-0050 and summarizes them in Paragraph B.2 of BTP CMEB 9.5-1, "Use of Water in Electrical Cable Fires" (page 9.5.1-4)

3. Implementation

It has been NRC policy since the guidelines were issued in 1976 to require for all NTOLs to install a fixed water suppression system in each of the cable spreading rooms.

4. Other Guidelines

The International Guidelines for the Fire Protection of Nuclear Power Plant (1974) also specify water for cable fires.

3. In our SER, we indicated that the fire alarm system complies with NFPA 72D for a Class "A" system. Based on observations during our visit, we raised concerns about the fire alarm systems compliance with NFPA 72D with regard to the listing of all equipment and circuit supervision. The applicant should provide verification that the fire alarm systems comply with NFPA 72D for a Class "A" system.

JAN 30 1985

MEETING SUMMARY DISTRIBUTION

~~Docket No(s): 50-412~~

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