



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JAN 20 1983

MEMORANDUM FOR: ~~Director, NRC~~
Division of Engineering

THRU: *for* William V. Johnston, Assistant Director
Materials & Qualifications Engineering
Division of Engineering

FROM: Victor Benaroya, Chief
Chemical Engineering Branch
Division of Engineering

SUBJECT: PROPOSED RESPONSE FOR UCS LETTER DATED JANUARY 5, 1983

Enclosed is a proposed response for the second item in the
subject letter as requested in your January 11, 1983 note.

V. Benaroya
Victor Benaroya, Chief
Chemical Engineering Branch
Division of Engineering

cc: R. Ferguson
F. Nolan

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Enclosure A

Excerpts from Fire Protection Guidelines

1. GDC 3, Appendix A to 10 CFR 50, in part: "Fire fighting systems shall be designed to assure that rupture or inadvertent operation does not significantly impair the safety capability of those structures, systems and components."
2. Section C.1.b of BTP-CMEB 9.5-1: "The fire hazards analysis should verify that the NRC fire protection program guidelines have been met."
3. Section C.5(a)(14) of BTP-CMEB 9.5-1, in part: "... floor drains sized to remove expected fire fighting water flow without flooding safety-related equipment should be provided in those areas where fixed water fire suppression systems are installed. Floor drains should also be provided in other areas where hand hose lines may be used if such fire fighting water could cause unacceptable damage to safety related equipment in this area."
4. Section C.6.(e) of BTP-CMEB 9.5-1: "Carbon dioxide suppression systems should comply with the requirements of NFPA 12, Carbon Dioxide Extinguishing systems and particular consideration should be given to:
 - a. Possibility of secondary thermal shock (cooling) damage, and
 - b. Conflicting requirements for venting during CO₂ injection to prevent overpressurization versus sealing to prevent loss of agent."
5. Section C.7(a) of BTP CMEB 9.5-1: "Operation of fire protection systems should not compromise the integrity of containment or other safety related systems."

Proposed Response for, Second UCS Item, Note to V. Benaroya dated January 11, 1983

The second item in your letter is concerned with the actions taken by the staff since January 1982 to ensure the environmental qualification of safety related equipment that can be subjected to water spray from fire protection systems.

We reviewed our regulations and guidelines for fire protection activities to determine whether they adequately addressed potential adverse interactions between fires, fire protection features and safety systems. The effects of water spray was one of the conditions considered in this review. Based on this effort we concluded that if the guidelines were implemented properly, adverse interactions between fire protection features and safety systems would be precluded. A partial listing of excerpts from these guidelines is provided as enclosure A.

During our review we determined that, in some cases, the safety equipment has been designed to withstand water spray. In other cases alternative safety functions are provided in a separate area where they are not subject to automatic water suppression. In some cases water shield are installed which prevent the indiscriminate spraying of safety related components while allowing the automatic suppression system to spray/flood a specific component if that component actuates a local fire detector. In view of these several cases, we do not deem it necessary to qualify all safety equipment for fire suppression water spray.

We also reviewed licensee event reports for the past several year period to identify other modes of adverse system interactions. We prepared a draft information notice relating to the interaction of fire protection systems with other plants systems. This information notice which concerns the effects of fire protection system actuations on safety-related equipment is being drafted and will be distributed to all licensees and applicants following completion.

6. Additional guidelines are set forth in Regulatory Guide 1.29, "Seismic Design Classification" and Regulatory Guide 1.78, "Assumptions for Evaluating the Habitability of Nuclear Power Plant Control Room During Postulated Hazardous Chemical Release," and in Standard Review Plan Section 9.3.3, "Equipment and Floor Drainage System;" Section 9.4.1, "Control Room Area Ventilation System;" and Section 9.4.5, "Engineered Safety Features Ventilation System."