

## NFPA Formal Interpretation Request Form

(This information is requested in Section 6 of the Regulations Governing Committee Projects)

Name John N. Hannon, Chief, Plant Systems Branch

Company United States Nuclear Regulatory Commission

Address \_\_\_\_\_

City Washington

State D.C.

Zip 20555-0001

Telephone 301 415-2873

Fax 301 415-2300

NFPA Document No. 12A Edition 1980 Paragraph Reference 1-5.4

Did this question arise from an actual field situation? Yes ☒ No ☐

Please state your business interest in the matter and identify other parties involved:

On June 20, 2002, the NRC held an open regulatory conference with Florida Power & Light Company (FPL) to discuss FPL's position in response to NRC's Draft Apparent Violation concerning the adequacy of their Total Flooding Halon 1301 Fire Extinguishing system installed in St. Lucie Unit 1 Cable Spreading Room. This Formal Interpretation request is a result of information presented by a member of the 12A Technical Committee (consulting to FP&L) that differs from the NRC Staff Fire Protection Engineers understanding of the 12A Standard.

Question: (Should be worded so that it can be answered with a yes or a no.)

Is it the intent of the Technical Committee that if the design concentration and hold time of a Total Flooding Halon 1301 Fire Extinguishing System (single primary discharge with no reserve supply) is inadequate to extinguish the fire hazard present, that the system be considered a fire control system in compliance with NFPA 12A *Halon 1301 Fire Extinguishing Systems 1980 edition*,?

Signature \_\_\_\_\_

Date \_\_\_\_\_

NFPA Fax (617) 770-3500

Mail to: Secretary, Standards Council • National Fire Protection Association  
1 Batterymarch Park • PO Box 9101 • Quincy, MA 02269-9101

V  
S  
M  
F  
1  
4  
1  
5

## Attachment 3 page 2 of 3

12A-8

HALON 1301 SYSTEMS

### 1-5.3 Use and Limitations.

1-5.3.1 Halon 1301 fire extinguishing systems are useful within the limits of this standard in extinguishing fires in specific hazards or equipment, and in occupancies where an electrically nonconductive medium is essential or desirable, where cleanup of other media presents a problem, or where weight vs. extinguishing potential is a factor.

1-5.3.2 Some of the more important types of hazards and equipment that Halon 1301 systems may satisfactorily protect include.

- (a) Gaseous and liquid flammable materials.
- (b) Electrical hazards such as transformers, oil switches and circuit breakers, and rotating equipment.
- (c) Engines utilizing gasoline and other flammable fuels.
- (d) Ordinary combustibles such as paper, wood, and textiles.
- (e) Hazardous solids.
- (f) Electronic computers, data processing equipment and control rooms.

1-5.3.3 Halon 1301 has not been found effective on the following:

- (a) Certain chemicals or mixtures of chemicals such as cellulose nitrate and gunpowder which are capable of rapid oxidation in the absence of air.
- (b) Reactive metals such as sodium, potassium, magnesium, titanium, zirconium, uranium, and plutonium.
- (c) Metal hydrides.
- (d) Chemicals capable of undergoing autothermal decomposition, such as certain organic peroxides and hydrazine.

1-5.3.4 Specific limitations are placed on Halon 1301 total flooding systems. (See 2-1.1.3 and 2-1.1.4.)

1-5.3.5 Electrostatic charging of nongrounded conductors may occur during the discharge of liquefied gases. These conductors may discharge to other objects, causing an electric arc of sufficient energy to initiate an explosion. (See NFPA 77, *Recommended Practice on Static Electricity*.)

1-5.4 Duration of Protection. It is important that an effective agent concentration not only be achieved but that it be maintained for a sufficient period of time to allow effective emergency action by trained personnel. This is equally important in all classes of fires since a persistent ignition source (e.g., an arc, heat source, oxy-acetylene torch or "deep-seated" fire) can lead to a recurrence of the

V  
S  
M  
F

Attachment 3 page 3 of 3

GENERAL

12A-9

initial event once the agent has dissipated. Halon 1301 extinguishing systems normally provide protection for a period of minutes but are exceptionally effective for certain applications. Water supplies for standard sprinklers, on the other hand, are normally designed to provide protection for one-half to 4 hrs duration but sprinklers may be less effective in controlling many fires. The designer, the buyer and the emergency force in particular shall be fully aware of the advantages and limitations of each, the residual risks being assumed and the proper emergency procedures

#### 1-5.5 Types of Systems.

1-5.5.1 There are two types of systems recognized in this standard: Total Flooding Systems and Local Application Systems.

1-5.5.2 A Total Flooding System consists of a supply of Halon 1301 arranged to discharge into, and fill to the proper concentration, an enclosed space or enclosure about the hazard.

1-5.5.3 A Local Application System consists of a supply of Halon 1301 arranged to discharge directly on the burning material.

1-5.6 Halon 1301 System. A Halon 1301 system may be used to protect one or more hazards or groups of hazards by means of directional valves. Where two or more hazards may be simultaneously involved in fire by reason of their proximity, each hazard shall be protected with an individual system with the combination arranged to operate simultaneously or be protected with a single system that shall be sized and arranged to discharge on all potentially involved hazards simultaneously.

#### 1-6 Safety.

##### 1-6.1\* Hazards to Personnel.

1-6.1.1 Personnel may be exposed to Halon 1301 vapors in low concentrations for brief periods without serious risk. (See 2-1.1.3 and 2-1.1.4) Exposure to high concentrations or for prolonged periods may produce dizziness, impaired coordination and disturbances in cardiac rhythm. Following the extinguishment of a fire by Halon 1301, the atmosphere may also contain combustion and decomposition products in quantities which may be hazardous to personnel. In addition, the effects of the noise, turbulence, high velocity and low temperature associated with the discharge of the agent shall be considered.