Halon 1301 Effectivity Analysis

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OBJECTIVE

- Present data which demonstrate the effectiveness of Navy fixed-wing and rotary-wing aircraft Halon 1301 fire suppression systems.
INTRODUCTION

- Navy Safety Center
  - Aircraft mishap reports
- All Navy aircraft fire incidents between 1977 -1993 inclusive
ASSUMPTIONS

- Analysis restricted to Navy aircraft which utilize halon 1301 as a fire suppressant
- The data pertains to those incidents which the pilot activated the fire suppression system
- Excluded incidents
- Extinguishment by unknown means
- Aircraft equipped w/ halon fire suppression

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WHEN FIRES OCCURRED IN HALON PROTECTED AIRCRAFT

NOTE: NUMBER OF AIRCRAFT FIRES PROTECTED BY FIRE SUPPRESSION SYSTEMS
FIRE INCIDENTS BY AIRCRAFT
NOTE: N/A IMPLIES NO ATTEMPT WAS MADE WITH FIRE SUPPRESSION SYSTEM

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FIRE LOCATIONS

- ECS COMPART.
- AFTERBURNER
- ENG. TAILPIPES
- TRANSMISSION
- LANDING. SYS.
- ROTOR SYS.
- APU
- ELEC. EQPT.
- ENGINES

NUMBER OF FIRES

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PROTECTED Vs. NON-PROTECTED AREAS

% FIRES IN PROTECTED AREAS
% FIRES IN NON-PROTECTED AREAS

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SUMMARY - FIXED WING AIRCRAFT

- Halon fire extinguishing systems were 78% effective overall
  - Portable halon fire extinguishing systems were 86% effective overall
  Engine halon fire extinguishing systems were 72% effective overall
  APU halon fire extinguishing systems were 100% effective overall (P-3)

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SUMMARY - ROTARY WING AIRCRAFT

• Halon fire suppression systems were 72% effective overall
  – Portable halon fire extinguishing systems were 89% effective overall
  – Engine halon fire extinguishing systems were 57% effective overall
  – APU halon fire extinguishing systems were 75% effective overall (H-53)
LESSONS LEARNED FROM ANALYSIS

- Altitude data
- Fire bottle redundancy
- Left/right engine vs. concentration measurement
- Greater attention to non-traditional fire zones

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