

HALON 1211 ALTERNATIVE EFFORTS

One More Time

Presented to:

Halon Options Technical Working Committee (HOTWC)

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Presented by: Bill Leach

NAVAIR Fire Protection Team Leader

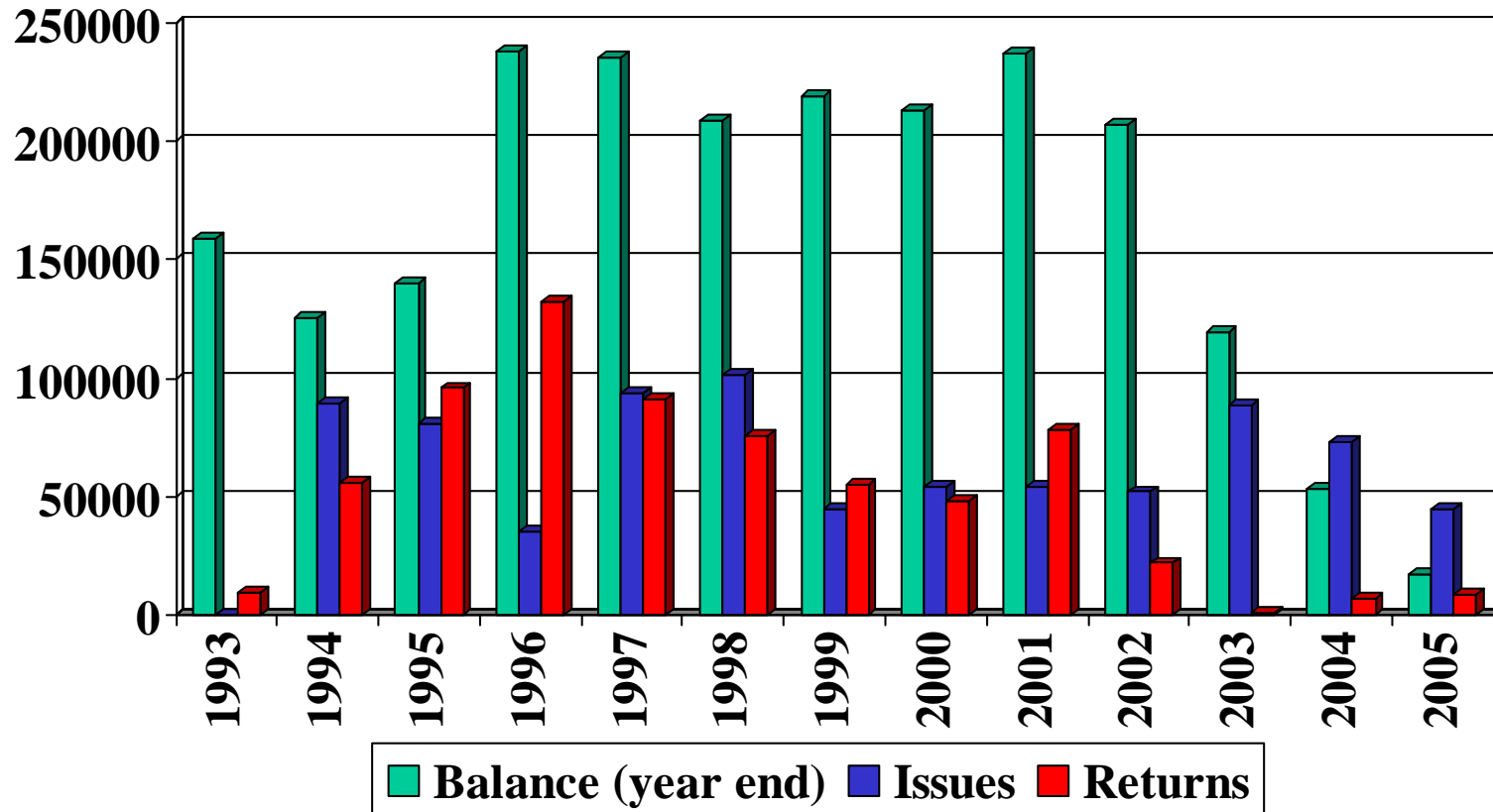
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DoN HALON 1211 USES

- Aviation Flightline 150 lb Wheeled Portable Fire Extinguisher (PFE)
 - Predominate Usage (~75%+)
- ARFF Equipment (Installed Systems)
 - Less Significant Usage (~15%)
 - ARFF Vehicles (Shore): 500 lbs/each
 - New Vehicles Use PKP
 - Twin Agent Units (TAU) 200-350 lbs/each
- PFEs (2.5 lbs – 20 lbs)
 - Minor Usage (~5%)
 - Shore Based ARFF Vehicles
 - Shipboard MFFV (P-25)
 - Training & Transport Aircraft
- LCAC
 - Minor Usage (<3%)
 - Critical Weight & Space Req'ts
- C-130J Engine Nacelle
 - Minor Usage (<1%)



DoN HALON 1211 RESERVE



FLIGHTLINE EXTINGUISHER



- Primary Airfield Extinguishers (150 lbs)
 - Only Extinguisher Available On Most DoN/USAF Flightlines
 - Most Prevalent Halon 1211 Application/Use Within DOD
- First Line of Defense for Aircraft Fires
 - Used Mainly by Aircraft Maintenance Personnel
 - “Sailor-Proof”
 - Easy Operation
- Generally “Overkill” For Most Common Flight Line Fires
 - UL Rated 30A:240B:C
- It’s Clean
 - Allows Mission Continuity, Post “Nuisance” Fires
 - No Collateral Damage

WHY REPLACE HALON 1211?

- DoN Reserve: Nearly Depleted
 - “Taking Donations” From USAF, Army, DLA, etc.
- USAF Reserve: End in Sight
- Largest Remaining “Emissive Use” of Halon
 - Banned in Some European Nations
 - Likely to be Banned by Entire EU in the Future
- No Longer Considered “Essential/Critical” by Some
 - “Banks” Being Destroyed
 - Not Used by Airlines
 - Most Foreign Militaries Have Switched to Alternatives
 - PKP, CAFS, CO₂, etc.

JOINT SERVICE APPROACH

- Air Force Has Agreed to Fill DoN's Current Needs
 - Inter-Service Cooperation Being Formalized by MOA
- Develop Comprehensive Halon 1211 Alternative Plan
 - Identify Sponsors for Alternate Agent Testing
 - ◆ Joint Need ◆ Joint Effort ◆ Joint Sponsorship
- Alternative Projects Funded
 - NDCEE
 - ESTCP

DIFFERENT APPROACHES

- Prior R&D: *Drop-In Approach*
 - Early 1990's @ Air Force (AFRL Tyndall)
 - Replace Effectiveness of 150# of Halon 1211, in Same Bottle
 - Extreme Technical Challenge; Unsuccessful
- NAVAIR Promotion: *Systems Approach*
 - Define Threats (Historical Basis)
 - Construct Representative Fire Scenarios During Testing
 - Identify Agents/Systems Proven to Meet Threat
 - Exploits Fact that *Usually* < 150# is Required
 - Very Limited Application; Successful (if ever required)
- Current Effort: *Mixed Approach*
 - Same Insistence on Agent Equivalence
 - USAF Already Has Some Stakeholder Buy-In
 - Minimum Performance Standard - AFRL-ML-TY-TR-02-4540; May 2002
 - But... No Container Restrictions
 - Allows (if not guarantees) System Growth
 - Going-In Position

PLAYERS

- Navy – Led Joint Program
 - NAVAIR Fire Protection Team
 - SAF/AQRE
 - Test Facility: AFRL Tyndall
- Supporting Navy Organizations
 - CNO N45
 - NAVSEA
- Stakeholders:
 - Fire Departments; Aircraft & Subsystems Program Managers; Engine Program Managers; Logistics Maintenance Organizations; ESOH Professionals; Ergonomics/Human Factors Community; etc.
 - Disciplines: Fire Suppression/Extinguishing Performance; Material Compatibility; Material Stability; Material/System Availability; Environmental; System Maintenance; Logistics; Cost; Etc.

ESTCP PLAN (SUMMARY)

	Schedule
Task 1: Aggregate Requirements <ul style="list-style-type: none">- Assemble Stakeholders- Compile (<i>NOT</i> Create) Requirements- Gain Formal Stakeholder Acceptance- Invite Mature Candidate Agents/Systems	Mar – Dec 2006
Task 2: Test Candidate Agents/Systems <ul style="list-style-type: none">- Dem/Val Against Requirements (<i>NOT</i> S&T)	Jan – Jun 2007
Task 3: Evaluate, Select, Report <ul style="list-style-type: none">- Rank Tested Candidates- Obtain Final Buy-In from Stakeholders	Jul – Dec 2007

AGGREGATE REQUIREMENTS

- USAF Minimum Performance Standard
 - AFRL-ML-TY-TR-02-4540; May 2002
 - Currently Undergoing Review/Discussion Within DoN
 - Navy & Marine Corps F&ES Requirements?
- Current Halon 1211 Extinguisher Purchase Description
 - WRALC PD 99LECF02 (19 Feb 99)
 - Specifies Size, Flow Rate, UL Rating, Maintainability, etc.
- Clean Agent Requirements
 - Not Clearly Defined
 - Clean Agent = Halon 1211
- Propulsion Community, Environmental, OSH, Etc.
 - TBD
- Industry Input Welcome (and encouraged)

TESTING

- To Be Conducted at AFRL Tyndall
- Only Testing Planned is Fire Testing
 - All Other “-ilities” Assessed on Contractor Furnished Information

QUESTIONS FOR STAKEHOLDERS

- Who Are the Stakeholders?
 - Multiple Disparate Communities
- What is Clean?
 - Current Requirements for Material Compatibility?
 - Manufacturer Specs/Guidelines
 - How Important is a Clean Agent?
 - What's Impact of a Dirty Agent?
 - Huge Un-programmed Cost Burden?
- Is USAF MPS Appropriate/Sufficient?
 - Very Conservative: Extreme Fire Challenge Meant to Stress 150# of Halon 1211
 - Does New Extinguisher Need UL 30A:240B:C Rating?
 - Would a Lower Rating Be Acceptable?
- Will Higher Cost of Agent & Extinguisher Be Acceptable?
 - Halon 1211 Unit \approx \$3,150 (\$15/lb for Halon + \$900 Hardware)
 - Agent "X" Unit \approx \$6,000 - \$7,500 (Assumes 300 lbs x \$15-\$20/lb + \$1500 Hardware)
 - Example Base Costs:
 - Combined European Bases \approx \$1.5 - \$1.8 M (240+ Extinguishers)
 - Single Master Jet Base \approx \$1.2 - \$1.5 M (200+ Extinguishers)
 - Single Small Airfield \approx \$150 - \$188 K (25 Extinguishers)
 - Who Pays for Flightline Extinguishers?
- Is 300+ lbs of Agent Acceptable?
 - Are There Any Size/Weight Constraints?
 - Ergonomics, Transportability, Footprint?
 - Is an Option For A Smaller (Less Capable) Extinguisher Desirable?