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"ESSENTIAL USES OF FIRE PROTECTION HALONS
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ON BEHALF OF THE NATIONAL ASSOCIATION OF FIRE EQUIPMEKT DISTRIBUTORS
(NAFED)

ABSTRACT
Protection of the Earth's ozone layer and protection of life and property from the effects of fire are vitally important concerns. Balance between these concerns can be reached for the good of all mankind.

The uses of fire protection halons can be separated into essential and non-essential categories. Criteria for selecting essential uses can be defined, and can be put into practice by those qualified to use the necessary engineering judgement. Arbitrary decisions must be avoided to achieve both the goals of proper fire protection and environmental protection.

Selection of essential uses must not be made based on hazard description alone. Site specific evaluation of hazard importance, clean agent need, and personnel exposure concerns will separate hazards of the same general description into essential and non-essential use categories.

It must be recognized that the criteria for selection of essential uses for halon portable extinguishers and for halon fixed systems are different.

The evaluation of essential uses will change over time, as new environmentally acceptable agent alternatives become available as solutions to fire protection problems.

INTRODUCTION ==========

THE NATIONAL ASSOCIATION OF FIRE EQUIPMENT DISTRIBUTORS, HEADQUARTERED IN CHICAGO, ILLINOIS, IS MADE UP OF APPROXIMATELY 1100 MEMBERS, REPRESENTING A LARGE PART OF THE DISTRIBUTION, SERVICE, AND RECHARGE OF FIRE EQUIPMENT IN THE UNITED STATES AND CANADA TODAY. NAFED MEMBERS ARE THE PEOPLE WHO END USERS OF FIRE PROTECTION EQUIPMENT CALL WHEN THEY HAVE A PROTECTION NEED OR A PROBLEM TO BE SOLVED.

NAFED HAS BEEN INVOLVED IN THE HALON/OZONE ISSUE SISCE 1956, AND HAS PROVIDED THE INDUSTRY WITH THE BEST AVAILABLE DATA ON HALON USE AND EMISSION PATTERNS. THE ASSOCIATIOS IS RECOGNIZED AS **A** MAJOR TECHNICAL AUTHORITY AND SOURCE OF INFORMATION ON THIS ISSUE. NAFED FULLY SUPPORTS THE MONTREAL PROTOCOL TO PROTECT THE OZONE LAYER. AND PLANS TO BE INVOLVED IN THE TRANSITION TO POST HALON FIRE PROTECTION SET UP BY THE TERMS OF THE PROTOCOL. IT IS NAFED'S MISSION TO ACT POSITIVELY FOR THE BENEFIT OF ITS MEMBERS AND THEIR CLIENTS, THE REST OF THE FIRE PROTECTION COMMUNITY. AND THE WORLD ENVIROXMENT.

PROTECTION OF THE EARTH'S OZONE LAYER AND PROTECTION OF LIFE AND PROPERTY FROM THE EFFECTS OF FIRE ARE VITALLY IMPORTANT CONCERNS. BALANCE BETWEEN THESE CONCERNS CAN, AND MUST, BE REACHED FOR THE GOOD OF ALL MANKIND. MUCH DISCUSSION HAS TAKEN PLACE IN THE FIRE PROTECTION INDUSTRY ON THE SUBJECT OF ESSENTIAL USES OF HALONS, AND NAFED BELIEVES THIS IS AN AREA WHERE BALANCE BETWEEN ENVIRONMENTAL AND FIRE PROTECTION CONCERNS IS PARAMOUNT.

SEPARATING ESSENTIAL AND NON-ESSENTIAL HALON USES

THE USES OF FIRE PROTECTION HALONS CAN AND SHOULD BE SEPARATED INTO ESSENTIAL AND NON-ESSENTIAL CATEGORIES. CRITERIA FOR SELECTING ESSENTIAL USES CAN BE DEFINED, AND CAN BE PUT INTO PRACTICE BY THOSE QUALIFIED TO USE THE NECESSARY ENGINEERING JUDGEMENT. SEPARATION AND SELECTION CRITERIA IS AN AREA WHICH MANY PEOPLE HAVE EXAMINED, INCLUDING NAFED. MUCH DIFFERENCE OF OPINION EXISTS ON THESE SELECTION CRITERIA, AND THIS DISAGREEMENT IS HEALTHY FOR THE OVERALL PROCESS. NAFED BELIEVES THAT ARBITRARY DECISIONS LEADING TO ESSENTIAL USE CRITERIA MUST BE AVOIDED TO ACHIEVE BALANCE BETWEEN ENVIRONMENTAL AND PROTECTION GOALS.

NAFED BELIEVES THAT SELECTION CRITERIA SHOULD BE CHOSEN BASED ON SITE SPECIFIC EVALUATION OF HAZARD IMPORTANCE, THE NEED FOR A CLEAN AGENT, HAZARD EXPOSURE CONCERNS, AND ENVIRONMENTAL PRIORITY. IT IS POSSIBLE TO DEVELOP BROAD, GENERAL GUIDELINES FOR HAZARDS OF THE SAME GENERAL DESCRIPTION, AND THESE GUIDELINES CAN BE HELPFUL TOOLS WHEN MAKING PROTECTION DECISIONS. HOWEVER, THERE WILL ALWAYS BE EXCEPTIONS TO AND DEVIATIONS FROM THESE GUIDELINES WHEN THE **ACTUAL** FIRE PROTECTION NEEDS OF A SPECIFIC SITE ARE EXAMINED. IT IS A MISTAKE TO REJECT THE USE OF HALON FOR A SPECIFIC SITE BASED SOLELY ON THE HAZARD DESCRIPTION, AND IT IS ALSO A MISTAKE TO RECOMMEND THE USE OF HALON FOR ALL SITES FALLING UNDER THE SAME DESCRIPTION. IT IS A MUCH MORE BALANCED APPROACH TO EXAMINE THE BENEFITS OF HALON PROTECTION FOR A PARTICULAR HAZARD ON A SITE-SPECIFIC BASIS, DECIDE WHICH OF THOSE BENEFITS IT IS ESSENTIAL TO PRESERVE, LOOK AT PROTECTION ALTERNATIVES WHICH FULFILL AS MANY OF THOSE BENEFITS AS POSSIBLE, AND CHOOSE HALONS WHEN NO OTHER AGENT PROVIDES THE SAME BENEFITS.

DIFFERENCES BETWEEN PORTABLE EXTINGUISHERS AND FIXED SYSTEMS

SIGNIFICANT DIFFERENCES EXIST BETWEEN THE PURPOSE, APPLICATION AND SELECTION OF HALON PORTABLE FIRE EXTINGUISHERS AND FIXED HALON FIRE SUPPRESSION SYSTEMS, AND IT IS NOTEWORTHY TO EXAMINE THESE DIFFERENCES. MAKING THE JUDGEMENT THAT HALON IS OR IS NOT SUITABLE FOR A GIVEN HAZARD MUST TAKE THESE DIFFERENCES INTO ACCOUNT. IT IS ENTIRELY LIKELY THAT HALON PORTABLES, BUT NOT A FIXED SYSTEM, SHOULD BE SELECTED FOR A PARTICULAR HAZARD, AS IT IS LIKELY THAT THE REVERSE COULD BE TRUE.

THE PURPOSE OF PORTABLE FIRE EXTINGUISHERS IS TO PROVIDE PERSONNEL IN OR NEAR A FIRE HAZARD WITH A FIRST AID MANUAL EXTINGUISHMENT METHOD FOR SMALL FIRES. EXTINGUISHERS ARE A LOCAL APPLICATION FIRE PROTECTION METHOD, APPLYING EXTINGUISHING AGENT DIRECTLY ONTO THE BURNING MATERIAL. PORTABLE EXTINGUISHERS HAVE THE EFFECT OF KEEPING SMALL FIRES SMALL. WHEN PROPERLY USED AND MAINTAINED. IN FACT. NAFED STUDIES SHOW THAT PORTABLE EXTINGUISHERS ARE EFFECTIVE OVER 94% OF THE TIME AT EXTINGUISHING SMALL FIRES BEFORE THEY CAN BECOME LARGE FIRES. PORTABLE EXTINGUISHERS ARE CONSIDERED PART OF GENERAL OCCUPANCY FIRE PROTECTION, ALTHOUGH DECISIONS ABOUT EXTINGUISHER TYPE, SIZE, AND PLACEMENT ARE OFTEN MADE ON THE BASIS OF THE SPECIAL HAZARDS WHICH EXIST IN AN OCCUPANCY.

BY CONTRAST, THE PURPOSE OF A FIXED AUTOMATIC HALON FIRE SUPPRESSION SYSTEM IS TO PROVIDE EARLY WARNING FIRE DETECTION AND AUTOMATIC ACTION TO EXTINGUISH A FIRE IN A GIVEN SPECIAL HAZARD. A HALON SUPPRESSION SYSTEM ACTS TO TOTALLY FLOOD A HAZARD WITH SUPPRESSION AGENT AUTOMATICALLY, AS OPPOSED TO THE MANUAL LOCAL APPLICATION APPROACH WITH PORTABLE EXTINGUISHERS. HALON SYSTEMS ARE USUALLY EQUIPPED WITH BOTH FIRE DETECTORS AND A DECISION-MAKING CONTROL UNIT. WHILE MOST HALON SYSTEMS ARE EQUIPPED WITH A MANUAL RELEASE STATION, THIS CAPABILITY IS SECONDARY TO THE PRIMARY FIRE DETECTION AND RELEASE PORTION OF THE SYSTEMS SEQUENCE OF OPERATION. HALON SYSTEMS PROVIDE TOTAL PROTECTION FOR SPECIAL HAZARDS, AND WHILE SOMETIMES GENERAL PROTECTION FEATURES SUCH AS SPRINKLERS ARE DELETED IN FAVOR OF HALON, HALON CANNOT BE CONSIDERED A REGULAR PART OF GENERAL OCCUPANCY FIRE PROTECTION. HALON SYSTEMS HELP TO MITIGATE THE RISKS ASSOCIATED WITH HIGH HAZARD AREAS, AND AREAS WHERE CATASTROPHIC LOSS IS POSSIBLE. AUTOMATIC HALON SYSTEMS OFIEN TAKE OTHER AUTOMATIC ACTIONS TO LIMIT LOSS, SUCH AS LOCAL PERSONNEL NOTIFICATION, SHUTDOWN OF AIR MOVEMENT, SHUTDOWN OF EQUIPMENT WITHIN THE HAZARD, AND NOTIFICATION OFF-SITE.

PORTABLE FIRE EXTINGUISHERS SHOULD BE SELECTED ON THE BASIS OF GENERAL OCCUPANCY NEEDS AND THE FIRE PROTECTION REQUIREMENTS OF SPECIAL HAZARDS WITHIN THE OCCUPANCY. RATINGS AND PLACEMENT OF EXTINGUISHERS FOR GENERAL OCCUPANCY CAN BE FOUND IN NATIONAL FIRE PROTECTION ASSOCIATION PAMPHLET 10, STANDARD FOR PORTABLE FIRE EXTINGUISHERS. GENERALLY, EXTINGUISHERS FOR GENERAL OCCUPANCY PURPOSES NEED TO BE RATED FOR FIRES IN ORDINARY COMBUSTIBLES, WITH SOME EXTINGUISHERS PROVIDED WITH RATINGS FOR FLAMMABLE LIQUID COVERAGE. HALON EXTINGUISHERS ARE CAPABLE OF PROVIDING BOTH RATINGS IN A COMPACT PACKAGE, BUT OTHER AGENTS SUCH AS DRY CHEMICAL ARE ALSO EFFECTIVE ON BOTH TYPES OF FIRE. A BENEFIT OF HALON IN A PORTABLE EXTINGUISHER IS NO RESIDUE LEFT BEHIND AFTER A FIRE, AND NO CLEANUP NECESSARY. IF THE NEED FOR THIS BENEFIT IN A PARTICULAR AREA IS VITAL, THEN THE AREA PROBABLY QUALIFIES AS A SPECIAL HAZARD, AND THE NEED FOR HALON PORTABLES SHOULD BE EVALUATED ON THAT BASIS.

HALON 1301 FIRE SUPPRESSION SYSTEMS SHOULD BE SELECTED BASED ON THE FIRE PROTECTION NEEDS OF PARTICULAR SPECIAL HAZARDS LOCATED WITHIN AN OCCUPANCY. **WHILE** PORTABLE EXTINGUISHERS ARE TESTED, LISTED, AND RATED WITH SPECIFIC NUMERICAL VALUES FOR CLASS A AND CLASS B PROTECTION, AUTOMATIC FIRE PROTECTION IS NOT RATED IN THE SAME MANNER. HALON SYSTEMS ARE EFFECTIVE ON CLASS A AND CLASS B FIRES, BUT ENGINEERING JUDGEMENT, RATHER THAN NUMERICAL RATINGS, IS USED FOR HALON SYSTEM SELECTION AND DESIGN.

ESSENTIAL USES OF HALON 1211 PORTABLE EXTINGUISHERS

HALON 1211 PORTABLE FIRE EXTINGUISHERS ARE IMPORTANT PROTECTION FOR A WIDE RANGE OF FIRE HAZARDS. NAFED BELIEVES THAT, AT THE PRESENT **TIME,** THE USES OF HALON 1211 PORTABLE EXTINGUISHERS CAN BE SEPARATED INTO ESSENTIAL AND NON-ESSENTIAL CATEGORIES. FOR *MANY* YEARS, NAFED HAS PUBLISHED A CHECKLIST OF FIRE EXTINGUISHER APPLICATIONS. THIS CHECKLIST INCLUDES INFORMATION AND GUIDANCE FOR EXTINGUISHER SELECTION FOR **73** DIFFERENT INDUSTRIAL, TRANSPORTATION, SPECIAL. AND SPECIFIC OCCUPANCY HAZARDS. CHARTS SHOW WHICH OF SEVEN DIFFERENT TYPES OF EXTINGUISHER IS RIGHT FOR EACH HAZARD. UNTIL VERY RECENTLY, THE NAFED CHECKLIST RECOMMENDED HALON 1211 EXTINGUISHERS AS SUITABLE FOR 21 OF THE 73 HAZARDS DESCRIBED IN THE LIST. A RECENT COMPREHENSIVE REVIEW OF THE CHECKLIST BY NAFED TECHNICAL STAFF AND NAFED'S PORTABLE FIRE EXTINGUISHER COMMITTEE REDUCED THE LIST OF HAZARDS WHERE HALON USE W S RECOMMENDED FROM THE ORIGINAL 21)WN TO SEVEN.

THE A CHOSEN BY NAFEI FOR THIS REVIEW ARE AS FOLLOWS:
USE ON 1211 ORTABL FIRE EXTINGUISHERS IF:
A. THE HAZARD IS OF OVERWHELMING VALUE TO SOCIETY AND B. HERE IS A EED FOR A EAN AGENT, WITH NO DOWNTIME FOR CLEANUP CCPTABLE AND C. THERE IS A NEEL JC 1211'S MULTIPURPOSE CAPABILITIES AND D. THERE IS CONCERN FOR PERSONNEL EXPOSURE T MORE TOXIC AGENTS.
THE APPENDIX TO THIS PAPER LISTS ALL HAZARDS WHICH NAFED PREVIOUSLY LISTED AS SUITABLE FOR HALON 1211 PORT BLE EXTINGUISHER PROTECTION. THIS DISCUSSION IS OF PORTABLE EXTINGUISHER REQUIREMENTS AND ESSENTIAL AND NON-ESSENTIAL USE OF HALON PORTABLES IN THE SEVEN HAZARD CATEGORIES WHICH NAFED NOW LISTS AS SUITABLE FOR HALON PORTABLES. THESE ARE PRESENTED IN ALPHABETICAL ORDER.

THE FIRST IS AIRCRAFT PROTECTION. NAFED BELIEVES THAT HALON PORTABLE EXTINGUISHERS ARE ESSENTIAL ON MILITARY FLIGHT LINES AND FOR SOME OF THE PORTABLE EXTINGUISHERS IN THE PASSENGER CABINS OF COMMERCIAL AIRCRAFT. HALON EXTINGUISHERS ARE NOT ESSENTIAL FOR ALL AREAS OF PASSENGER CABINS. SOME REQUIREMENTS FOR PORTABLES IN COMMERCIAL AIRCRAFT COULD BE FILLED WITH WATER AND DRY CHEMICAL TYPES.

NEXT IS THE PROTECTION OF DATA PROCESSING EQUIPMENT. A SINGLE EXAMPLE FOR ILLUSTRATIVE PURPOSES OF A HAZARD WHOSE PROTECTION WITH HALON PORTABLES WHICH NAFED CONSIDERS ESSENTIAL IS AN AIR TRAFFIC CONTROL COMPUTER. ANY INTERRUPTION, FOR EVACUATION OF PERSONNEL IF C02 IS USED OR FOR CLEANUP IF DRY CHEMICAL IS USED, HOWEVER BRIEF, IS NOT WORTH THE RISK TO LIFE AND PROPERTY RESULTING FROM UNCONTROLLED AIRSPACE. HAZARDS FOR WHICH HALON PORTABLES MAY BE CONSIDERED NON- ESSENTIAL ON A CASE-BY CASE BASIS INCLUDE THE DATA PROCESSING EQUIPMENT FOR MANY PRIVATE COMPANIES. WHILE DOWNTIME AND CLEANUP MAY BE COSTLY, THIS EQUIPMENT AND THE INFORMATION WHICH IS PROCESSED MAY NOT BE OF OVERWHELMING VALUE TO SOCIETY.

THIRD IS DELICATE ELECTRONIC EQUIPMENT. MANY LABORATORIES, INDUSTRIAL RESEARCH FACILITIES, AND OTHER FIRMS USE IRREPLACEABLE EQUIPMENT FOR ESSENTIAL RESEARCH AND OTHER USES. THE LOSS OF EQUIPMENT BEING USED FOR RESEARCH INTO AIDS OR CANCER, FOR EXAMPLE, TO FIRE OR EXTINGUISHING AGENT DAMAGE MAY BE OVERWHELMING. THE SAME CAN BE SAID FOR EQUIPiMENT BEING USED FOR RESEARCH INTO HALON REPLACEMENTS, WHERE A LOSS COULD BE MUCH MORE CATASTROPHIC TO THE ENVIROKMENT THAN A SMALL RELEASE OF HALON 1211TO SAVE THE EQUIPMENT. A SINGLE EXAMPLE OF A NON-ESSENTIAL USE MAY BE A PERSONAL COMPUTER IN AN OFFICE.
NEXT IS PROCESS EQUIPMENT CONTROL ROOMS. ESSENTIAL USES HERE MAY BE BEST TYPIFIED BY NUCLEAR PLANT CONTROL ROOMS AND CONTROL ROOMS FOR OIL PIPELINES. THESE FACILITIES ARE MAVNED 24 HOURS A DAY, AND LOSS OF CONTROL OF PROCESSES OF THIS TYPE, EVEN FOR THE SHORT PERIOD OF TIME NECESSARY TO EVACUATE PERSONNEL OR CLEAN UP DISCHARGED AGENT, COULD LEAD TO MAJOR ENVIRONMENTAL CATASTROPHES. REGULAR INDUSTRIAL PLANT CONTROL ROOMS MAY BE CLASSIFIED AS HAZARDS WHERE HALON PORTABLES ARE NOT ESSENTIAL, BUT EVEN HERE SOME ENGIKEERING JUDGEMENT MUST BE APPLIED ON A SITE-SPECIFIC BASIS. IF THE PROCESS BEING CONTROLLED IS, FOR EXAMPLE, INDISPENSABLE TO THE NATIONAL DEFENSE, AN EXCEPTIOX MAY BE JUSTIFIED.

THE FIFTH HAZARD CATEGORY IS SWITCHGEAR ROOMS. EXAMPLES OF THESE HAZARDS WHERE HALON PORTABLE EXTINGUISHER USE MAY BE JUDGED ESSENTIAL ARE ROOMS CONTAINING POWER EQUIPMENT FOR INDISPENSABLE PROCESSES. AN INTERRUPTION OF THE POWER TO THE FACILITIES EARLIER DESCRIBED AS ESSENTIAL USE HAZARDS MAY BE AS CATASTROPHIC AS THE TEMPORARY LOSS OF THE FACILITY ITSELF.
THE SIXTH AND SEVENTH HAZARDS FROM THE NAFED CHECKLIST OF FIRE EXTINGUISHER APPLICATIONS WHICH CAN BE JUDGED AS ESSENTIAL USERS OF HALON PORTABLE EXTINGUISHERS ARE SIMILAR. TELEPHONE EXCHANGES AND TELECOMMUNICATIONS EQUIPMENT WHICH ARE MANNED, AND WHICH HANDLE COMMUNICATION INDISPENSABLE TO NATIONAL DEFENSE ARE AN EXAMPLE OF ESSENTIAL USE HAZARDS. UNMANNED CELLULAR TELEPHONE EXCHANGES ARE AN EXAMPLE OF A HAZARD WHERE HALON 1211 PORTABLE FIRE EXTINGUISHER PLACEMEKT IS PROBABLY NOT JUSTIFIED.

IT MUST BE REITERATED THAT THESE ARE ALL JUST EXAMPLES OF AN ENGINEERING JUDGEMENT BASED CHOICE PROCESS FOR SELECTING ESSENTIAL USES, AND THIS LIST IS NOT INTENDED TO BE ALL INCLUSIVE OR ABSOLUTE. SITE SPECIFIC EVALUATION IS THE ONLY WAY TO RESPONSIBLY SELECT THOSE HAZARDS WHERE HALON 1211 PORTABLE FIRE EXTINGUISHER USE IS JUSTIFIED, AND JUST AS IMPORTANT, WHERE SUCH EXTINGUISHER PLACEMENT IS NOT JUSTIFIED. TWO NOTES OF CAUTION ARE APPROPRIATE HERE. ENGINEERING JUDGEMENT OF ESSENTIAL USE MUST NOT BE CONFUSED WITH LACKING THE WILL OR RESOURCES TO DO WHAT IS NECESSARY TO PROVIDE ADEQUATE FIRE PROTECTION WITHOUT HALONS. ON THE OTHER HAND, ENGINEERING JUDGEMENT CRITERIA WHICH LEADS TO TOO-RESTRICTIVE SELECTION CRITERIA MUST NOT BE ALLOWED TO LEAD TO A LARGE INCREASE IN FIRE LOSSES, INCLUDING LOSS OF LIFE, LOSS OF PROPERTY, AND LOSS OF THAT WHICH IS VITAL TO THE HEALTH AND WELL BEING OF THE ENTIRE PLANET. THIS INCLUDES TRYING SO HARD TO SAVE THE OZONE LAYER THAT OTHER ENVIRONMENTAL CONCERNS, FOR EXAMPLE THE ALASKAN TUNDRA OR THE AREA SURROUNDING A NUCLEAR POWER PLANT, ARE PUT AT ENORMOUSLY GREATER RISK.

ESSENTIAL USES OF HALON 1301 FIRE SUPPRESSION SYSTEMS

BEFORE DISCUSSING WHICH HAZARDS ARE ESSENTIAL USES FOR HALON 1301 FIRE SUPPRESSION SYSTEMS AND WHICH ARE NOT, IT MAY BE USEFUL TO EXAMINE THE REASONS WHY HALON 1301 WAS CHOSEN IN THE TIME BEFORE THE OZONE ISSUE SURFACED, AND DISCUSS THE CONTINUED VALIDITY OF THESE REASONS.

ONE REASON FOR CHOOSING HALON IS ITS EFFECTIVENESS. HALON 1301 IS EFFECTIVE ON ORDINARY COMBUSTIBLES AND FLAMMABLE LIQUIDS, AND IS ELECTRICALLY NON-CONDUCTIVE. IN OTHER WORDS, A TRUE MULTI-PURPOSE AGENT. HALON IS ALSO FAST ACTING, WHICH WORKS TO MINIMIZE FIRE DAMAGE. OTHER SUPPRESSION AGENTS ARE AVAILABLE WHICH ARE MULTI PURPOSE AND CAN ACT QUICKLY TO SUPPRESS FIRE, SO WHILE THE VALIDITY OF THIS BENEFIT IS UNQUESTIONED, OTHER FACTORS MUST ENTER INTO THE DECISION WHETHER OR NOT TO PROTECT WITH A HALON SYSTEM.

ANOTHER REASON FOR HALON USE IS CLEANLINESS. HALON LEAVES NO RESIDUE BEHIND AFTER ITS USE. THIS IS A VERY VALUABLE CONSIDERATION FOR HAZARDS WHERE AGENT DAMAGE MAY BE JUST AS MUCH OF A PROBLEM AS FIRE DAMAGE, SO THIS REASON IS STILL A VALID ONE. HOWEVER, STEPS COULD BE TAKEN BEFORE A FIRE OCCURS TO MITIGATE THE EFFECTS OF AGENT DAMAGE ON THE HAZARD. SOME OF THESE STEPS MAY BE COMPARTMENTALIZATION, BACKUP, PLANNING AHEAD FOR CLEANUP BY STOCKING MATERIALS OR CONTRACTING WITH CLEANUP EXPERTS, OR COMPLETE REDUNDANCY. HOWEVER, EVEN THE BEST PRE- FIRE PLANNING MAY NOT WORK IF THE ITEMS DAMAGED ARE IRREPLACEABLE, SUCH AS HISTORICAL DOCUMENTS. PRE-FIRE PLANKING FOR AGENT DAMAGE IS PROBABLY MUCH MORE EXPENSIVE THAN HALON PROTECTION FOR MOST HAZARDS. OWNERS OF THOSE HAZARDS MUST HAVE THE WILL AND THE RESOURCES TO ABSORB THOSE COSTS. IN THE OPINION OF NAFED, IT IS A GREAT MISTAKE TO FORCE THIS DECISION ON

PEOPLE, BECAUSE IT IS LIKELY THAT, INSTEAD OF OPTING FOR NON-HALON PROTECTION WITH EXPENSIVE PRE-FIRE AGENT CLEANUP PLANNING, MANY PEOPLE WILL CHOOSE LITTLE OR NO FIRE PROTECTION AT ALL. NAFED WANTS TO SEE PROPER FIRE PROTECTION, WITH HUMAN LIVES NOT PLACED AT RISK. HALON CLEANLINESS REMAINS A VALID CONSIDERATION.

SAFETY FOR HUMAN EXPOSURE IS AN IMPORTANT REASON TO CONSIDER A HALON SYSTEM. WHILE THERE ARE OTHER AGENTS WHICH PROVIDE EFFECTIVENESS AND CLEANLINESS BENEFITS, SUCH AS CARBON DIOXIDE, THERE IS NO OTHER SINGLE SUPPRESSION AGENT WHICH COMBINES THESE WITH THE BENEFIT OF NON- TOXICITY. THE CHIEF ENGINEER OF A MAJOR HALON SYSTEM MANUFACTURER SAID IT BEST WHEN HE STATED THAT IF CARBON DIOXIDE WERE BEING INTRODUCED FOR THE FIRST TIME TODAY AS A REPLACEMENT AGENT FOR FIRE PROTECTION HALONS, IT WOULD IMMEDIATELY BE REJECTED DUE TO ITS TOXICITY TO HUMAN LIFE. CARBON DIOXIDE IS FATAL WHEN USED IN EXTINGUISHING CONCENTRATIONS FOR TOTAL FLOODING PROTECTION. THIS IS NOT TO MINIMIZE THE EFFECTIVENESS OF CO2, OR TO TAKE AWAY FROM ITS UTILITY FOR CERTAIN HAZARDS, INCLUDING SOME WHICH HAVE BEEN PROTECTED WITH HALON. RATHER, THE POINT IS THAT C02 SHOULD NOT BE LOOKED AT AS A BROAD-BASED REPLACEMENT FOR HALON, SINCE THE SAFETY AND TOXICITY IS SO IMPORTANT. NAFED BELIEVES THAT, IF THE CHOICE IS NO FIRE PROTECTION, RISKING LIFE AND PROPERTY UNDULY. VERSUS PROTECTION WHICH PUTS LIFE AT RISK, SUCH AS C02, VERSUS HALON PROTECTION, THEN THE CHOICE OF HALON IS A VALID ONE.

HALON HAS OFTEN BEEN CHOSEN BECAUSE OF ITS COST-EFFECTIVENESS OVER OTHER METHODS. THE FIRE PROTECTION INDUSTRY AND OWNERS OF SPECIAL FIRE HAZARDS MUST HAVE THE WILL AND FIND THE RESOURCES TO IXSTALL MORE EXPENSIVE FIRE PROTECTION IF THE ONLY REASON TO CHOOSE HALON IS LOWER COST. HOWEVER, WE MUST NOT FALL INTO THE *TRAP* OF INSTALLING NOTHING. IT IS A MISTAKE TO PROVIDE NO FIRE PROTECTION AS AN ALTERNATE TO HALON JUST BECAUSE OF COST CONSIDERATIONS.

THERE HAVE BEEN MANY DECISIONS MADE TO USE HALON BECAUSE OF THE LACK OF WATER FOR FIRE PROTECTION. THIS COULD TAKE THE FORM OF EITHER NO WATER AT ALL, OR ONLY WATER IN QUANTITIES FOR DOMESTIC NEEDS SUCH AS WASHING AND FLUSHING. THE CHOICE OF HALON AS A RESULT OF THIS LACK OF WATER IS NOT AS VALID AS IT ONCE WAS. IN LIGHT OF THE SITUATION FACING US TO SEPARATE ESSENTIAL FROM NON-ESSENTIAL USES, EVERYONE MUST WORK HARDER AND SPEND MORE FOR AN ADEQUATE WATER SUPPLY, IF IN FACT WATER IS THE BEST AGENT FOR THE JOB. BUT, EVEN THE SPRINKLER INDUSTRY ITSELF IS TAKING NOTE OF DROUGHT SITUATIONS IN MANY PARTS OF THE COUNTRY, SO THIS MAY NOT GET EASIER AS TIME GOES ON. AS STATED BEFORE. IT IS NAFED'S OPINION THAT IT IS A BAD DECISION TO CHOOSE NO FIRE PROTECTION BECAUSE OF THE ENVIRONMENTAL COXCERNS OVER HALON. IF IT IS TOO EXPENSIVE TO EXPLORE OTHER PROTECTION AGENTS.

LASTLY, HALON SYSTEMS HAVE BEEN INSTALLED SIMPLY BECAUSE OF HALON'S REPUTATION AS A WONDER GAS, BECAUSE HALON IS HIGH-TECH, AND IT IS SEXY TO HAVE A STATE OF THE ART FIRE PROTECTION SYSTEM.

NAFED BELIEVES THIS IS NOW THE WEAKEST POSSIBLE REASON FOR CHOOSING HALON, AND IN THE INTERESTS OF THE GLOBAL ENVIRONMENTAL CONCERN FACING US TODAY, OTHER PROTECTION MUST BE CHOSEN IF THIS IS THE ONLY REASON TO USE HALON. HOWEVER, IT MUST BE RECOGNIZED THAT THE INDUSTRY IS WORKING VERY DILIGENTLY ON ENVIRONEMNTALLY RESPONSIBLE CLEAN AGENTS. AND IT WOULD BE A MISTAKE TO COMPLETELY DISREGARD CLEAN AGENT FIRE PROTECTION IN THE FUTURE, UNTIL WE KNOW FOR SURE WHAT THE IMPACT OF NEW AGENTS WILL BE.

NATIONAL FIRE PROTECTION ASSOCIATION PAMPHLET 12A, STANDARD FOR HALON 1301 FIRE EXTINGUISHING SYSTEMS, HAS BEEN THE BIBLE OF THE HALON SYSTEM INDUSTRY FOR MANY YEARS. THE 1989 EDITION OF NFPA 12A CONTAINS A LIST OF THE MORE IMPORTANT TYPES OF HAZARDS AND EQUIPMENT WHICH HALON 1301 SYSTEMS MAY SATISFACTORILY PROTECT. THIS LIST, WHILE BY NO MEANS REFLECTING THE COMPLETE SCOPE OF ALL HAZARDS WHERE HALON HAS BEEN INSTALLED AND SUCCESSFULLY USED, REPRESENTS A GOOD STARTING POINT FOR THE DISCUSSION OF ESSENTIAL VERSUS NON-ESSENTIAL USE CATEGORIES.

THE NFPA LIST IS AS FOLLOWS: 1. GASEOUS AND LIQUID FLAMMABLE MATERIALS. 2. ELECTRICAL HAZARDS SUCH AS TRANSFORMERS, OIL SWITCHES AND CIRCUIT BREAKERS, AND ROTATING EQUIPMENT. 3. ENGINES UTILIZING GASOLINE AND OTHER FLAMMABLE FUELS. 4. ORDINARY COMBUSTIBLES SUCH AS PAPER, WOOD, AND TEXTILES. 5. HAZARDOUS SOLIDS. 6. ELECTRONIC COMPUTERS, DATA PROCESSING EQUIPMENT, AND CONTROL ROOMS.
HALON SYSTEMS HAVE BEEN USED SUCCESSFULLY ON FIRES IN FLAMMABLE LIOUID AND GAS STORAGE AREAS. THE AGENT IS SUPERIOR TO WATER IN THESE HAZARDS BECAUSE MOST FLAMMABLE LIQUIDS FLOAT ON WATER, WHICH CAN SPREAD THE FIRE. HALON ALSO PROVIDES THE BENEFITS OF CLEANLINESS AND PERSONNEL SAFETY. ANY ACTIVE FIRE SUPPRESSION ALTERNATIVE TO HALON IN THESE HAZARDS WILL COMPROMISE ONE OR MORE OF THESE BENEFITS. CARBON DIOXIDE WILL BE EFFECTIVE AND CLEAN, BUT WILL PRESENT A LIFE SAFETY HAZARD. DRY CHEMICAL WILL BE EFFECTIVE AND SAFE, BUT WILL SPOIL PRODUCT AND REQUIRE EXTENSIVE CLEANUP. WATER SPRINKLERS CAN BE USED, BUT SPRINKLERS WILL BE LESS EFFECTIVE THAN HALON, AND REQUIRE CLEANUP. WATER IS OF COURSE SAFE TO USE AROUND PERSONNEL IN THE HAZARD. IF ONE OF THESE COMPROMISES CAN BE TOLERATED, THEN HALON IS NOT ESSENTIAL FOR THAT PARTICULAR HAZARD. BUT, IF NO COMPROMISE IS ACCEPTABLE, THEN HALON USE IS ESSENTIAL, ESPECIALLY IF THE ALTERNATIVE IS NO FIRE PROTECTION AT ALL, WITH RISK TO LIFE AND VALUABLE PROPERTY. IF THE ONLY CRITERIA FOR HALON USE IS LOW COST. THEN THE WILL AND THE RESOURCES SHOULD BE FOUND TO PROVIDE 'MORE COSTLY PROTECTION WHICH STILL ACHIEVES ALL OBJECTIVES.

ELECTRICAL HAZARDS ARE NUMEROUS IN TODAY'S INDUSTRIAL SOCIETY. ELECTRICITY IS THE ENERGY WHICH MAKES OUR ECONOMIC INFRASTRUCTURE GO. IN MANY CASES, THE LOSS OF A KEY ELECTRICAL HAZARD TO FIRE WOULD BE CATASTROPHIC. HALON SYSTEMS HAVE BEEN VERY SUCCESSFUL IN SUPPRESSING FIRES IN CRUCIAL ELECTRICAL HAZARDS, AND HAVE HELPED KEEP US ALL MOVING. IN MOST CASES,

HALON WAS CHOSEN FOR THESE HAZARDS FOR THE MULTIPLE BENEFITS IT PROVIDES, AND ANY ALTERNATE TO HALON PROTECTION WILL COMPROMISE ONE OR MORE OF THESE BENEFITS. IN THE INTEREST OF ENVIRONMENTAL RESPONSIBILITY, WE MUST EXAMINE WHAT IS THE MOST REASONABLE COMPROMISE FOR MANY ELECTRICAL HAZARDS.

IT IS QUITE LIKELY THAT MANY ELECTRICAL HAZARDS ARE NOT NORMALLY OCCUPIED. IF THIS IS THE CASE, THEN CARBON DIOXIDE CAN BE USED SUCCESSFULLY. IF OCCUPANCY IS POSSIBLE AT ANY TIME. FOR EXAMPLE FOR INSPECTION AND MAINTENANCE, THEN PROPER PRECAUTIONS MUST BE TAKEN.
NFPA PAMPHLET 12, STANDARD FOR CARBON DIOXIDE EXTINGUISHING SYSTEMS, CONTAINS INFORMATION ON THIS TOPIC.
IF THE ELECTRICAL HAZARD IN QUESTION IS NORMALLY OCCUPIED, THEN THE USE OF C02 PROTECTION MAY NOT BE WORTH THE RISK. OTHER AGENTS CAN BE USED TO PROVIDE PROPER PROTECTION, BUT DAMAGE FROM THE AGENT ITSELF WILL RESULT. PREPLANNED RECOVERY METHODS OR FULL-FLEDGED REDUNDANCY ARE WAYS TO COMPENSATE FOR THIS LIKELIHOOD. THE WILL AND THE RESOURCES MUST BE FOUND TO PROVIDE BOTH THE PROTECTION AND THE RECOVERY OR REDUNDANCY, IF HALON USE IS NOT CONSIDERED ESSENTIAL. NAFED BELIEVES THAT HAVING NO FIRE PROTECTION IS NOT AN OPTION.

MOST OFIEN, STATIONARY ENGINES REQUIRING FIRE PROTECTION ARE INSTALLED FOR THE PURPOSE OF PROVIDING EMERGENCY BACKUP POWER WHERE SUCH BACKUP IS ESSENTIAL. A HOSPITAL IS AN EXCELLENT EXAMPLE OF SUCH AN INSTALLATION. INTERNAL COMBUSTION ENGINES ARE ALSO USED TO RUN FIRE PUMPS WHICH PROVIDE WATER TO SPRINKLERS IN BUILDINGS. THIS IS ESPECIALLY IMPORTANT IN HIGH-RISE BUILDINGS, WHERE SPRINKLER PROTECTION IS VITALLY IMPORTAXT TO LIFE SAFETY IN OFFICES AND HOTELS. THESE ENGINES, WITH THEIR ASSOCIATED FLAMMABLE FUELS AND LUBRICANTS, ARE A SEVERE FIRE HAZARD. UNLESS REDUNDAUCY IS PROVIDED, VIRTUALLY NO DOWNTIME DUE TO AGENT DAMAGE CAN BE TOLERATED. THIS MAKES GASEOUS AGENTS ESSENTIAL FOR SUCH HAZARDS. IN THE ABSENCE OF PEOPLE, CARBON DIOXIDE CAN PROVIDE THE NECESSARY PROTECTION. HOWEVER, THE RISK TO PERSONNEL MUST BE ASSESED, A I D IF TOO GREAT, HALON MAY BE THE ONLY CHOICE. THE RISK TO THE ENVIRONMENT IS CERTAINLY IMPORTANT, BUT THE RISK TO LIFE FROM CUTOFF OF POWER IN A HOSPITAL, OR THE LOSS OF FIRE PROTECTION WATER IN A HIGH-RISE BUILDING, IS CRITICAL ENOUGH THAT HALON USE ON THE ENGINES SUPPLYING THAT POWER AND WATER COULD BE JUDGED ESSENTIAL.

A HALON 1301 FIRE SUPPRESSION SYSTEM IS CAPABLE OF EXTINGUISHING FIRES IN ORDINARY COMBUSTIBLES, SUCH AS PAPER, WOOD, CLOTH, AND RUBBER. WHILE HALON HAS BEEN USED WHEN THESE HAZARDS REPRESENT THE POTENTIAL FOR DEEP-SEATED FIRES, THIS CHOICE HAS NOT BEEN POPULAR DUE TO COST, COMPLEXITY, AND THE NEED TO MAINTAIN EXTINGUISHING CONCENTRATIONS FOR EXTENDED PERIODS. OTHER PROTECTION METHODS, ESPECIALLY SPRINKLERS, HAVE BEEN CHOSEN AND USED SUCCESSFULLY. EXCEPTIONS ALWAYS EXIST, ESPECIALLY WHEN THE CONTENTS ARE EXTREMELY VALUABLE AND SUBJECT TO WATER DAMAGE. FUR STORAGE IS AN EXAMPLE OF SUCH A HAZARD, BUT CARBON DIOXIDE HAS BEEN CHOSEN OVER HALON IN MOST

CASES WHEN CLEAN AGENT FIRE PROTECTION IS NEEDED FOR FUR VAULTS. THIS TYPE OF HAZARD IS NOT NORMALLY OCCUPIED, MAKING C02 A SAFE CHOICE WHEN PROPERLY APPLIED. CONSIDERATION FOR HALON USE ON ORDINARY COMBUSTIBLE HAZARDS SHOULD BE MADE ONLY WHEN RECOVERY FROM WATER DAMAGE OR REDUNDAUCY IS NOT POSSIBLE, A SINGLE EXAMPLE OF WHICH IS STORAGE OF IRREPLACEABLE ARTIFACTS, HISTORICAL DOCUMENTS, UNIQUE BOOKS, OR OTHER ITEMS WHICH PRESERVE HISTORY AND HERITAGE.

HAZARDOUS SOLIDS ARE THOSE OTHER THAN CLASS A SOLIDS WHICH REPRESENT A FIRE HAZARD. ESSENTIALLY, THESE SUBSTANCES ARE FLAMMABLES WHICH DO NOT QUALIFY AS EXPLOSIVES. THE FLAMMABLE SUBSTANCE IN A ROAD FLARE, OR FUSEE, IS AS GOOD AN EXAMPLE AS ANY. EVEN THOUGH NFPA 12A STATES THAT HALON 1301 IS SUITABLE FOR THIS TYPE OF HAZARD, THE FIRE PROTECTION INDUSTRY HAS HARDLY EVER USED HALON IN THIS SORT OF APPLICATION. THE ADVANTAGES OF WATER ARE OBVIOUS, AND NAFED HAS NO DOUBTTHAT WATER SHOULD BE USED. THIS CAN DEFINITELY BE CLASSIFIED AS NON-ESSENTIAL.

ELECTRONIC EQUIPMENT SUCH AS COMPUTERS, TAPE AND DISK DRIVES, CONTROL ROOMS, HOSPITAL EQUIPMENT SUCH AS CAT SCAN AND NUCLEAR MAGNETIC RESONANCE UNITS, AND TELEPHONE AND OTHER TELECOMMUNICATIONS EQUIPMENT REPRESENT THE LARGEST CATEGORY OF HALON SYSTEM USE. THE ADVANTAGES OF HALON PROTECTION ARE INARGUABLE. THERE IS NO DOUBT THAT HALON 1301 REPRESENTS THE BEST PROTECTION OPTION FOR THIS CLASS OF HAZARD, AND INDEED, HALON HAS DONE A SUPERB JOB OF PROVIDING FIRE PROTECTION FOR THESE INSTALLATIONS WHILE NOT HARMING THE EQUIPMENT ITSELF AND NOT RISKING HUMAN LIFE FROM AGENT EXPOSURE. ANALYSIS OF THE ESSENTIAL NEED OF HALON SYSTEMS FOR THIS CATEGORY OF HAZARD MUST BE BASED ON THE ESSENTIAL NATURE OF THE HAZARDS THEMSELVES. MOST OF THESE HAZARDS ARE IN FACT NORMALLY OCCUPIED, PUTTING C02 PROTECTION OUT OF THE QUESTION, WITH A LIMITED EXCEPTION FOR COMPUTER ROOM UNDERFLOORS. WATER PROTECTION CAN BE USED, BUT WITH TWO MAJOR DRAWBACKS. THE FIRST IS OBVIOUSLY AGENT DAMAGE. IT IS IN FACT TRUE THAT COMPUTER EQUIPMENT CAN BE DRIED OUT FROM A SPRINKLER DISCHARGE, BUT THIS TAKES TIME. IF ABSOLUTELY NO DOWNTIME IS TOLERABLE, SPRINKLERS ARE A COMPROMISE CHOICE. THE OTHER DRAWBACK TO STANDARD SPRINKLERS IS THEIR SPEED OF OPERATION. WHILE SPRINKLER SYSTEMS WITH FUSIBLE LINK BASED SPRINKLER HEADS ARE RAPID ENOUGH FOR NORMAL OCCUPANCY PROTECTION, THEY DO NOT COME CLOSE TO THE SPEED AND EFFECTIVENESS OF AUTOMATIC SYSTEMS BASED ON MORE RAPID FORMS OF DETECTION, SUCH AS SMOKE DETECTORS. HEAT CAN CAUSE JUST AS MUCH DAMAGE TO DELICATE ELECTRONIC EQUIPMENT AND MAGNETIC DATA STORAGE MEDIA AS FLAME. IT IS POSSIBLE TO EXTINGUISH A SMALL FIRE IN A TAPE OR DISK STORAGE AREA, WITH VERY FEW TAPES OR DISKS WETTED BY SPRINKLERS AND EVEN FEWER DAMAGED BY FLAME IMPINGEMENT, AND HAVE MOST OF THE DATA ON THE TAPES AND DISKS IN THE AREA RENDERED USELESS DUE TO HEAT. RECOVERY MAY BE POSSIBLE IN SOME CASES, BUT EVEN THE RECOVERY WHICH IS POSSIBLE TO ACCOMPLISH IS TIME CONSUMING AND EXPENSIVE. ONE OF THE ADVANTAGES OF THIS TYPE OF SPRINKLER SYSTEM IS VERY LOW PROBABILITIES OF ACCIDENTAL AGENT DISCHARGE. TRYING TO ADAPT

EARLY WARNING FIRE DETECTION TO A SPRINKLER SYSTEM RENDERS THE AREA THAT MUCH MORE SUBJECT TO ACCIDENTAL AGENT DAMAGE DUE TO THE MORE SENSITIVE NATURE OF THE DETECTION. THE ONLY REAL WAY TO USE WATER TO PROTECT A HAZARD OF THIS NATURE IS TO EITHER ACCEPT THE DOWNTIME AND RECOVERY COSTS ASSOCIATED WITH MORE FIRE DAMAGE, HEAT DAMAGE AND AGENT DAMAGE, OR TO PROVIDE COMPETE REDUNDANCY OF EQUIPMENT AND DATA STORAGE. BOTH OF THESE METHODS ARE COMPLICATED AND EXPENSIVE. THE DEVELOPMENT OF HALON FIRE PROTECTION FOR HAZARDS OF THIS NATURE ENABLED USERS OF ELECTRONIC EQUIPMENT TO HAVE CONFIDENCE THAT THEY DID NOT NEED COMPLETE REDUNDANCY TO ACHIEVE COMPLETE FIRE PROTECTION.

IF THE USERS OF EQUIPMENT AND DATA ARE NOT ABLE TO PROVIDE FOR COMPLETE REDUNDANCY, AND ARE WILLING TO ACCEPT THE DOWNTIME AND COSTS ASSOCIATED WITH SPRINKLER USE, THEN THE HAZARD IS PROBABLY NOT ESSENTIAL ENOUGH FOR HALON USE. IF THE USERS CANNOT AFFORD THE DOWNTIME FOR CLEANUP AND DATA RECOVERY, AND DO HAVE THE WILL AND THE RESOURCES TO PROVIDE FOR COMPLETE REDUNDANCY, THEN SPRINKLER PROTECTION WILL PROBABLY BE ACCEPTABLE AND HALON USE IS PROBABLY NOT ESSENTIAL. IF THE HAZARD ITSELF IS SOMEWHAT REDUNDANT, AND SOCIETY COULD LIVE WITHOUT THE HAZARD IN THE EVENT OF LOSS DUE TO FIRE, THEN HALON USE IS PROBABLY NOT ESSENTIAL. HALON USE IS IN FACT ESSENTIAL WHEN LOSS OF THE HAZARD WOULD CAUSE HARM TO SOCIETY, DOWNTIME AND RECOVERY ARE ABSOLUTELY INTOLERABLE, AND COMPLETE REDUNDANCY IS ABSOLUTELY IMPOSSIBLE. MANY HAZARDS PROBABLY FIT IN TO THIS LAST CATEGORY, AND IT IS PROBABLY A MISTAKE TO GENERALIZE HERE. EACH OWNER AND/OR END USER OF DELICATE ELECTRONIC EQUIPMENT AND DATA MUST USE ENGINEERING JUDGEMENT, AS WELL AS SOME SOUL SEARCHING, TO DETERMINE THE ESSENTIAL NATURE OF HALON USE. IT IS NAFED'S OPINION THAT IT IS A MISTAKE TO BE ARBITRARY WHEN MAKING THIS SENSITIVE DECISION. IT IS ALSO NAFED'S OPINION THAT ANY ATTEMPT TO BE ARBITRARY, BY CATEGORIZING GROUPS OF HAZARDS AS NON-ESSENTIAL, WILL RESULT IN EITHER OF TWO PROBLEMS. EITHER DANGEROUS OR INADEQUATE FIRE PROTECTION WILL BE PROVIDED, P U T T '' LIVES AT RISK NEEDLESSLY, OR NO PROTECTION AT ALL WILL BE PROVIDED. WE CANNOT STATE STRONGLY ENOUGH THE NEED FOR PROVIDING SOME KIND OF FIRE PROTECTION, EVEN IF HALON USE IS NOT ESSENTIAL. THE UNITED STATES OF AMERICA HAS ONE OF THE WORST LOSS HISTORIES FROM FIRE OF ANY INDUSTRIALIZED COUNTRY TODAY. A STATISTIC WHICH WE SHOULD FEEL SHAME FOR. IT IS PART OF THE MISSION OF NAFED TO CONTRIBUTE TO THE REVERSAL OF THAT STATISTIC, EVEN WHEN FACED WITH HARD ENVIRONMENTAL CHOICES, AS WELL.

THE IMPORTANCE OF BANK MANAGEMENT FOR ESSENTIAL USES

THE FIRE PROTECTION INDUSTRY RECOGNIZES THAT, AS TAXES ON NEW HALON INCREASE AND THE PHASEDOWN MANDATED BY THE MONTREAL PROTOCOL TAKES EFFECT, THE SUPPLY OF NEW HALON FOR NEW INSTALLATIONS AND RECHARGE OF EXISTING EQUIPMENT WILL DWINDLE.

THIS MAKES THE CHOICE OF ESSENTIAL USES EVEN MORE IMPORTANT, SINCE HAZARDS WHICH DO NOT ABSOLUTELY NEED HALON PROTECTION SHOULD NOT RECEIVE NEW HALON PORTABLES OR SYSTEMS, PRESERVING THE SUPPLY FOR MORE ESSENTIAL USES. ALSO, THOSE HAZARDS WITH EXISTING HALON PROTEMON WHICH IS JUDGED NON-ESSENTIAL CAN HAVE THEIR HALON PROTECTION REMOVED IN ALL GOOD CONSCIENCE, WITH OTHER PROTECTION METHODS TAKING THE PLACE OF HALON. THIS "BANK" OF INSTALLED HALON REPRESENTS A RESOURCE WHICH THE INDUSTRY AND END USERS MUST DEPEND ON, SINCE THE HALON BANK IS NOT SUBJECT TO TAX OR PHASEOUT. THIS BANK OF HALONS ALREADY INSTALLED MUST BE MANAGED PROPERLY TO PROVIDE FOR ESSENTIAL FIRE PROTECTION REQUIREMENTS. ESSENTIAL USE CHOICES AND BANK MANAGEMENT GO HAND IN HAND, SINCE PROPER CHOICES WILL FREE UP HALON SUPPLIES FROM NON-ESSENTIAL APPLICATIONS FOR USE WHERE HALON USE IS ESSENTIAL. WHILE IMPROPER CHOICES WILL LIMIT THE SUPPLY AVAILABLE, AND KEEP THE HALON WHERE ITS USE IS NOT WORTH IT. THIS IS ALL PART OF THE ESSENTIAL USE DECISION - WHETHER OR NOT THE HALON FOR A PARTICULAR HAZARD IN QUESTION WOULD BE BETTER OFF SOMEWHERE ELSE. THE PRESENCE OF THIS BANK DOES MAKE ONE PART OF THE ESSENTIAL USE DECISION A LITTLE EASIER. WHERE HALON USE IS JUDGED ESSENTIAL, THE BANK REPRESENTS A SIZABLE RESOURCE TO DRAW UPON FOR A CONTINUED SUPPLY OF AGENT. IF HALON USE IS JUDGED ESSENTIAL, THE BANK IS CAPABLE OF SUPPLYING QUANTITIES OF AGENT, AT A REASONABLE COST. ANYONE MAKING THE DECISION THAT HALON USE IS ESSENTIAL FOR A PARTICULAR HAZARD, AND SPECIFYING HALON ON THAT BASIS, NEED NOT FEAR THAT THEY ARE SPECIFYING A "ONE-SHOT" SYSTEM, WITH NO HALON AVAILABLE FOR REFILL.

NAFED FEELS IT CAN BE AN INDUSTRY LEADER IN BANK MANAGEMENT BY BEING A CLEARINGHOUSE FOR HALON SUPPLIES. IF, FOR EXAMPLE, AN OFFSHORE OIL RIG NEAR LOUISIANA NEEDS 1000 POUNDS OF HALON, NAFED COULD BE A SOURCE FOR THE INFORMATION THAT A 1000 POUND SYSTEM IN CONNECTICUT WAS JUST DEACTIVATED, AND HOOK UP THE PARTIES INVOLVED TO CUT A DEAL SO THE AGENT CAN MOVE FROM THE NON-ESSENTIAL TO THE ESSENTIAL USE. NAFED WOULD NOT BE INVOLVED IN THE BUSINESS PORTION OF THE TRANSACTION, BUT WOULD SIMPLY TRACK SUPPLY AND DEMAND, AND MAKE INTERESTED PARTIES AWARE OF EACH OTHER AT EACH END OF THE TRANSACTION. EVERYONE BENEFITS - THE PARTY WHOSE HAZARD IS NO LONGER ESSENTIAL RECEIVES SOME ECONOMIC BENEFIT FROM THEIR HALON, THE PARTY WHOSE HAZARD IS ESSENTIAL RECEIVES RECYCLED AGENT TO CONTINUE THEIR ESSENTIAL PROTECTION AT A REASONABLE COST, AND RECYCLED HALON FROM THE BANK MOVES FROM A NON-ESSENTIAL USE TO AN ESSENTIAL ONE, PROTECTING THE ENVIRONMENT FROM A NON-ESSENTIAL RELEASE OF AN OZONE DEPLETER. BANK MANAGEMENT IS ALSO SERVED, ENSURING CONTINUED FIRE PROTECTTON FOR THE FUTURE. NAFED IS PROUD OF THE LEADERSHIP IT HAS ALREADY SHOWN ON THE HALON/OZONE ISSUE, AND WE FEEL IT IS OUR DUTY TO CONTINUE TO DEMONSTRATE LEADERSHIP BY PROVIDING CONCRETE ANSWERS TO TOUGH PROBLEMS.

THE FIRE PROTECTION INDUSTRY RECOGKIZES THE INEVITABILITY OF A PHASEOUT OF HALON 1301. NAFED FULLY SUPPORTS THE PROVISIONS OF THE MONTREAL PROTOCOL, WHICH PHASES OUT THE PRODUCTION OF NEW FIRE PROTECTION HALON BY 2000. HOWEVER, THE PHASEOUT OF HALONS DOES NOT MEAN THE END OF THE KEED FOR CLEAN AGENT FIRE PROTECTION, AND IN RESPONSE TO THE CONTINUED NEED OF END USERS OF THIS TYPE OF PROTECTION, AND IN RESPONSE TO THE NEED TO BE ENVIRONMENTALLY RESPONSIBLE, THE INDUSTRY HAS BEGUN WORK ON NEW CLEAN AGENTS. A CLEAN AGENT CAN BE BEST DEFINED AS ONE 'WHICH PRESERVES AS MANY OF THE BENEFITS OF HALON USE AS POSSIBLE, WITH MINIMAL OR NO NEGATIVE ENVIRONMENTAL IMPACT. THE MOST IMPORTANT BENEFITS OF HALON PROTECTION WHICH MUST BE PRESERVED BY THE NEW GENERATION OF CLEAN AGENTS ARE EFFECTIVENESS, SAFETY TO HUMANS, AND CLEANLINESS. SEVERAL COMPANIES ARE WORKING DILIGENTLY ON NEW CLEAN AGENT CANDIDATES, AND EXCITING RESULTS HAVE BEEN REPORTED SO FAR. THE POTENTIAL REPRESENTED BY THESE CLEAN AGENTS SHOULD BE TAKEN INTO ACCOUNT WHEN EVALUATING THE ESSENTIAL USES OF CURRENT HALONS.

THE NEW FAMILY OF CLEAN AGENT CANDIDATES REPRESENTS THE OPPORTUNITY TO PROVIDE AN ORDERLY TRANSITION TO POST HALOS FIRE PROTECTION WITHOUT UNDUE EXPOSURE TO FIRE RISK, OR THE RISK IMPOSED BY COMPROMISE FIRE PROTECTION METHODS. THERE MAY BE CASES WHERE A MOVE AWAY FROM HALON, WITH ASSOCIATED RISKS IMPOSED BY NOT PROVIDING ANY PROTECTTON AT ALL OR RISKS FROM COMPROMISE FIRE PROTECTION, COULD BE AVOIDED BY SIMPLY WAITING UNTIL CLEAN AGENTS ARE AVAILABLE TO TAKE OVER THE PROTECTION REQUIREMENTS. THIS APPROACH IS IN ITSELF RISKY, SISCE CURRENT NEW CLEAN AGENT CANDIDIATES STILL REQUIRE MUCH TESTING AND EVALUATIOS BEFORE MARKET INTRODUCTION. HOWEVER, FIRE AND ENVIRONMENTAL PROTECTION INVOLVES THE BALANCING OF RISK, SO THIS ADDITIONAL POSSIBILITY IS A POSITIVE, NOT A NEGATIVE, PART OF THE DECISION-TAKING PROCESS. NAFED IS ENCOURAGED BY THE PROGRESS MADE TO DATE ON CLEAN AGENTS FOR THE FUTURE, ESPECIALLY IN LIGHT OF THE FACT THAT, AT THE PRESENT TIME, OSLY MINIMAL MANDATORY CONTROLS EXIST. THE FIRE PROTECTION INDUSTRY HAS BEEN VERY RESPONSIBLE IN PLANNING AHEAD AND IXVESTING IN THE FUTURE, INSTAED OF WAITING UNTIL THE LAST MINUTE TO REACT.

CONCLUSIONS THE FIRE PROTECTION NEEDS OF THE HAZARDS TRADITIONALLY PROTECTED WITH HALONS STILL EXIST. WHILE BALANCE BETWEEN FIRE PROTECTION AND ENVIRONMENTAL PROTECTION IS ESSENTIAL, IT IS A MISTAKE TO OVERBALASCE AND ELIMINATE FIRE PROTECTION IN THE NAME OF THE ENVIRONMENT. IT IS ALSO A MISTAKE TO BE ARBITRARY ABOUT FIRE PROTECTION DECISIONS, WHETHER OR NOT THE ENVIRONMENT IS INVOLVED. INFORMED ENGINEERING JUDGEMENT IS ESSENTIAL TO THE PROCESS FOR EACH INDIVIDUAL FIRE HAZARD WHERE HALON HAS THE POTENTIAL TO SAVE A LIFE, OR SAVE PROPERTY WHICH BENEFITS SOCIETY. GENERAL GUIDELINES CAN BE SET UP, BUT AS WITH ALL GUIDELINES, THE ACTUAL DECISION RESTS UPON THE CIRCUMSTANCES OF EACH INDIVIDUAL CASE, AND THE JUDGEMENT OF

THE PEOPLE INVOLVED. NAFED HOPES IT HAS BROUGHT *MANY* OF THE PERSPECTIVES IN BALANCE IN THIS PRESENTATION, AND WE HOPE TO CONTINUE TO CONTRIBUTE TO THE PROCESS. NAFED STAUNCHLY BELIEVES THAT PROTECTION OF THE ENVIRONMENT IS VITAL TO THE CONTINUED PRESENCE OF LIFE ON THIS PLANET, BUT ALLOWING THE INSIDIOUS DAMAGE TO SOCIETY REPRESENTED BY UNCONTROLLED FIRE TO TAKE ITS TOLL ON LIFE AND SOCIETY CANNOT BE ALLOWED, ANY MORE THAN DEPLETION OF THE OZONE LAYER .PA CAN BE ALLOWED. THERE WILL ALWAYS BE AN ESSENTIAL NEED FOR CLEAN AGENT FIRE PROTECTION, AND AN ORDERLY TRANSITION TO THE POST-HALON ERA, WITHOUT ARBITRARY DECISIONS LEADING TO LARGE FIRE LOSSES, IS THE ONLY ENVIRONMENTALLY RESPONSIBLE WAY TO PROCEED.

APPENDIX ========

FIRE HAZARDS FROM NAFED "CHECKLIST OF PORTABLE FIRE EXTINGUISHER APPLICATIONS WHICH WERE IDENTIFED AS SUITABLE FOR HALON 1211 USE.

AIRCRAFT FUEL SERVICING
AIRCRAFT (ON-BOARD FIRES)
BATTERY CHARGING ROOMS
CHEMICAL LABORATORIES
DATA PROCESSING EQUIPMENT
DELICATE ELECTRONIC EQUIPMENT
ELECTRIC GENERATING PLANTS
FLAMMABLE LIQUID STORAGE ROOMS
LIBRARIES
MOTORCRAFT (BOATS)
MUSEUMS
OFFICE AREAS
PHOTOCOPIERS
PROCESS EQUIPMENT CONTROL ROOMS
POWER STATIONS
RECORD STORAGE ROOMS
RUBBER PRODUCTS MANUFACTURING
SWITCHGEAR ROOMS
TELECOMMUNICATIONS ROOMS
TELEPHONE EXCHANGES
TEST CELLS