HALON BANK MANAGEMENT

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INTRODUCTION

The Halon Alternatives Research Corporation (HARC) commissioned a study, beginning in January this year, on halon recycle and recovery. The objectives of the project were to:

- Provide updated estimates of the halon bank quantities.
- Determine demographic and geographic distribution of the banked halon.
- Estimate the cost of recovery and recycling.
- Identify potential problem areas that may impede an effective recovery and recycling program.

Although the project was not originally identified as a halon bank management study, it evolved into one. The final report is being completed this week. The report will be peer reviewed, before it is released for general dismbution.

My presentation is not intended as a review of the HARC study. However, it draws from some of the information obtained during the course of the project. Please note that statements or opinions expressed are my own and do not represent any official position at HARC.

What I will try to cover today, is the following:

- Report on the current status of recovery and recycle of halons in the U.S.
- Identify some questions to be answered and problems that need to be solved.
- Make some recommendations for future action.

DEFINITIONS OF TERMS

Before discussing what is taking place in the real world with regard to halon bank management, there are some definitions of terms I would like to review. Too often, when controversial or new subjects are discussed, terms that are used may have different meanings,

depending on each individual's perspective. Therefore, to avoid any confusion or misunderstanding, the following definitions apply:

HALON BANK:

THE TOTAL QUANTITIES OF HALONS CONTAINED IN SHIPPING OR STORAGE CONTAINERS AND IN EXTINGUISHING SYSTEMS CONTAINERS, PORTABLE EXTINGUISHERS, AND MOBILE UNITS.

In other words, the halon bank is all of the halon out there, how ever it is being used, or stored.

HALON BANK RESERVE:

THAT PORTION OF THE HALON BANK SET ASIDE IN STORAGE FOR USE AS NEEDED, FOR USERS REQUIRING QUANTITIES IN EXCESS OF THEIR OWN HALON BANK.

At some point, when production of new halon has stopped, a user needing halon is going to be dependent on recycled halon. In the case of an essential use system needing recharge for example, the facility will be without protection until the system can be recharged and put back in service. Therefore, a reserve supply of halon needs to be available for critical use applications. If a centralized common reserve is not established, from which users can depend on as a resource of supply, each user will be forced to establish their own reserves. Establishment of a multitude of individual reserves is neither economically nor environmentally, a sound practice.

HALON BANK MANAGEMENT:

THE PROCESS O F

TRACKING HALON USE AND EMISSIONS THROUGH EACH STAGE FROM MANUFACTURE, THROUGH INITIAL FILL, INSTALLATION RECOVERY, RECYCLING (OR DESTRUCTION) AND RECHARGING

AND

APPLYING IT TO OBTAIN THE MAXIMUM BENEFIT FOR EACH USE, AFTER CONSIDERATION OF BOTH FIRE PROTECTION AND ENVIRONMENTAL, NEEDS.

Until such time as suitable replacement agents are found to utilize in place of the halons, or presently protected risks using halons are protected by an alternative means, the need for halons will continue. Because production of new halon will cease in the not too distant future, supplies for essential uses of halons will be dependent on the halon bank. Additionally, it is vitally important to avoid unnecessary emissions. Therefore, we must learn to manage this resource effectively.

I am pleased to report that although no formal halon bank management program has been implemented, a form of bank management is taking place. The recovery and recycling of halons is alive and well. What is needed is to expand and improve on what is already being done!

U.S. HALON USAGE and BANK SIZE DATA

Before discussing what is taking place now with halon bank management, some of the information about present and historical use of halons may be helpful. As indicated earlier, one of the objectives of the HARC study was to verify halon usage and try to quantify bank size and the demographic and geographic distribution of the halons. Although no significant changes to previous surveys were found, we were able to zero in a little better, on bank size. In addition, we did not find significant changes are taking place in halon usage.

As has been reported in the past, halons are used primarily to protect electronic facilities and equipment, with smaller percentages used for: record storage, transportation, flammable liquids, cultural heritage and other (miscellaneous or unclassified) applications. The specific breakdown for halon 1211 and 1301 are as follows:

HALON 1211 APPLICATIONS:

ELECTRONICS	45%
TRANSPORTATION	30%
OTHER	23%
RESIDENTIAL	2%

HALON 1301 APPLICATIONS:

ELECTRONICS	75%
RECORD STORAGE	10%
FLAMMABLE LIQUIDS	5%
CULTURAL HERITAGE	3%
TRANSPORTATION	2%

Of perhaps greater interest to this group, is the breakdown of public vs. private sector usage.

HALON 1211:

40 TO 45% OF HISTORICAL HALON USAGE WENT TO THE PUBLIC SECTOR MARKET (GOVERNMENTAL AGENCIES, PRIMARILY MILITARY)

HALON 1301:

20 TO 25% OF HISTORICAL HALON 1301 USAGE WENT TO THE PUBLIC SECTOR MARKET (GOVERNMENTAL AGENCIES, WITH MILITARY THE LARGEST USER)

The halon bank size estimates have been revised from those contained in the Report of the Halons Technical Options Committee issued in December of last year. Utilizing data obtained in the HARC study, the current halon 1211 and 1301 U.S. bank sizes are estimated to be:

HALON BANK SIZE.

HALON 1211 = 20,000 TO 23,000 METRIC TONS
(44,100,000 TO 50,715,000 LBS.)

HALON 1301 = 20,200 TO 23,800 METRIC TONS
(44,541,000 TO 52,479,000 LBS.)

I should caution you, that all of the data I have shown or included in this presentation is preliminary and subject to revision pending peer review of the HARC study.

The real significance of the data that has just been shown, is not whether it is accurate to the last pound or percentage point, but that it provides an order of magnitude frame of reference. The information can then be used to make decisions in the future about how the halon bank can be managed to provide both good fire protection and protect the environment.

Based upon current usage rates, the halon bank contains sufficient halon to last well into the next century. This assumes that the recovery and recycle rate will continue to increase, recovery efficiencies will continue to improve, production of new halons will continue through 1993 and demand for new systems or equipment will not increase.

The lack of a broad based national program to track the rate of usage and emissions and the rapidly changing demand for new systems and equipment, makes predicting what might happen in the near future somewhat uncertain.

HALON BANK MANAGEMENT - NOW

As information about potential environmental damage caused by the release of CFC's and halons became more widely accepted, the fire protection community and the users of halons, began implementing procedures to minimize unnecessary emissions. They have also been more critical in their evaluation of when halon use is necessary. The changes that have been implemented by users and the fire protection industry, have resulted in continually increasing recovery and recycle activity.

Most large corporations as well as many governmental agencies and the military services, have adopted specific policy guidelines regarding the usage and disposition of halons. With some exceptions, smaller users and some governmental agencies have not adopted specific policies regarding halon use and disposition.

Typically, firms providing fire protection services are consulted by both large and small users about halon use and disposition, as well as the status and availability of replacement agents, or alternative means of providing fire protection for vital facilities. The result is that these firms, are either recommending and/or providing a significant percentage of the halon recovery and recycling taking place at the present time.

The military services are also initiating recovery and recycling programs. Some major users have initiated internal bank management programs. A major producer of halons through one

of their subsidiary corporations, has established a halon recycling operation that will provide recycled halon meeting the same standards of purity of the recycled product, as for new production. Manufacturers of systems and portables have implemented programs to conserve and recycle halons.

All of these activities constitute a form of halon bank management. The missing ingredient, is overall coordination of these activities.

HALON BANK MANAGEMENT - FUTURE

At present, free market forces are maintaining a reasonable balance between supply and demand for halon. The presence of either a surplus or shortage has not occurred due to the availability of new production and increasing use of recycled halon. As production of new halon phases out and demand becomes dependent upon recycled halon for the available supply, the need for a system or procedures to measure and project both supply and demand, along with the development of a system to match bank conmbutors and consumers, will become necessary.

Additionally, some means of providing accountability that proper conservation practices are being used and essential use needs are being met, will likely be required.

For the private sector of the market, some type of "market trading" organization needs to be established. It would serve as a focal point for coordinating the flow of major quantities of halon from bank contributors to bank consumers. It could provide coordination of reporting usage and emissions data and essentiality review. It could also coordinate establishment of a halon bank reserve to serve the private sector market.

QUESTIONS-NEEDS-RECOMMENDATIONS

One of the questions that can't be answered at present, is what are annual emissions and usage rates? Without an ongoing system for collecting and reporting such information, it is unknown whether improvements are really being made in reducing emissions and what changes are taking place in usage patterns. What are the actual recovery efficiencies being achieved? It has been estimated that the real recovery efficiency for halon 1301 is no better than 75 to 80%. Is that true, or acceptable?

Standards need to be established for recycling equipment, agent purity, operating procedures, training of personnel, etc. A good practice criteria needs to be developed by which users and the fire protection community can evaluate essential use.

As a final thought, serious consideration must be given to the establishment of a centralized formal organization that can oversee and coordinate a halon bank management program. It must be independent of either government or private sector domination. It must also be free of anti-trust or similar restrictions that would inhibit voluntary participation and cooperation by both government and industry. And perhaps most important of all, it must be flexible, so that as the inevitable changes take place, the organization can adapt to the changes.