End of Life Management ODS and SGG Fire Extinguishants

Overview

Key Take Aways

- Introduction
- What are ODS & SGG Fire Extinguishing Agents
- Harmful environmental impacts
- The role of regulations & the FPIB
- National Halon Bank
- Recovery of agents at equipment End of Life (EoL)
- Responsible EoL Management
- Situation in our own backyard
- Where to now?

Introduction

A-GAS
TOGETHER WE CAN

Our Purpose:

To Build a Sustainable Future

Protect and enhance the environment by effectively managing the lifecycle of refrigerants to build a sustainable future

When we refer to 'lifecycle' we mean our circular approach to recover and reclaim used refrigerant and fire protection gases, ensuring no product is released to atmosphere.

Bridging the knowledge gap!

Elvira Nigido
A-Gas Group Sustainability Compliance Manager

ODS & SGG Fire Extinguishing Agents

What Are They?

- Halocarbon agents containing one or more compounds of the element's fluorine, chlorine, bromine, or iodine.
- Examples are hydrofluorocarbons (HFCs) and hydrochlorofluorocarbons (HCFCs).
- Developed as replacements for halons (which are highly ozone depleting).
- Commonly known agents (referred to using their trade names): Halon 1211, Halon 1301, FM200, NAF-P-III, NAF-S-III, Halotron, FE-36, FE-25.
- Well maintained fire protection systems have very low leak rates; whole point of the technology is to effectively store the material until the time when it may be needed to suppress fire.

Harmful Environmental Impacts

How?

- If leaked, agents are very harmful to the ozone layer/& or contribute to global warming due to their high ozone depleting or global warming potentials; this is **WHY** we need to recover.
- Montreal Protocol and domestic legislation phase out of Halons in the mid-1990s; banned except for essential (civil aviation and Defence).
- Synthetic Greenhouse Gases (SGGs) in fire protection were developed to replace halons which damage the Earth's protective ozone layer.
- HFCs have been primary SGG fire extinguishing gas type in use in Australia, have a high global warming potential (GWP).
- For example, releasing one tonne of HFC-227ea (FM 200) with a GWP of 3600 is equivalent to releasing 3600 tonnes of CO_2e or equal to 661 homes' electricity use for one year!
- We still don't have good visibility on the number of ODS and SGG fire protection systems in operation across Australia and therefore are approaching end of life.

Role of Regulations and the Fire Protection (ODS & SGG) Industry Board

- The Montreal Protocol (1987) most successful environmental treaty to protect the ozone layer by phasing out ODSs; the Kigali amendment was implemented in 2016 to reduce HFC emissions.

- Australia: **Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 -** helps us achieve our obligations under the Montreal Protocol; designed to protect the environment by reducing emissions of ODS & SGGs found in fire protection systems. ODS and SGG extinguishing agents are substances listed in **Schedule 1 of the Act**

- Supported by the **Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995**

- FPIB - administers fire protection division of the Ozone Protection and Synthetic Greenhouse Gas Regulations on behalf of the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

- Minimising and ultimately eliminating the use of ODS and SGG in fire protection has not only environmental benefits but also operational ones (technicians do not need to hold an EAHL).

National Halon Bank

- Government facility established in 1993, currently operated by A-Gas Australia in Laverton North Victoria.
- Nationwide halon collection program.
- Primarily safely stores decommissioned halon removed from government, business & the community for end-of-life management to meet essential uses until suitable alternatives are found (predominantly civil aviation and Defence).
- Accepts ODS & SGG Fire Extinguishing Agents listed in Schedule 1 of the Ozone Protection Act – Halons, HCFCs, HFCs.
- Operates under a Halon Special Permit, Extinguishing Agent Trading Authorisation, Certified Environmental Management System to ISO 14001.
- Free call number for enquiries – 1800 658 084
- **FREE ODS & SGG AGENT DISPOSAL COST!!!!**

Recovery of agents at equipment End of Life

Why recover?

- Routine maintenance and audits of fire protection systems as per relevant Australian Standards (AS1851), determine working condition of systems.
- Some owners/ managers choosing to **maintain existing systems for as long as possible** rather than replace outdated equipment.
- Some owners/managers due to their corporate Sustainability commitments are **transitioning to lower GWP** /more environmentally friendly agents.
- **Agent recovery can occur:**
  - ✓ Prior to and after a 10-year hydrostatic gaseous fire system cylinder tests
  - ✓ After a system discharge (recover residual)
  - ✓ At end-of-life system decommissioning.
- **Recovery activities - by appropriately EAHL licensed technicians!**
- **Then what happens to the recovered agent???**

Responsible End of Life Management

- **Recovery**
  - ✓ promotes the circular economy – with HFC quota, import of virgin HFC declining; increased reliance on recovered used product to maintain existing systems.
  - ✓ poor recovery during service and testing can lead to leakage therefore volume available for re-use could diminish, forcing equipment owners to move earlier to alternatives.
  - ✓ conducted by suitably EAHL qualified personnel.
- **Recycle / Reclamation**
  - ✓ Re-use, recycled product should only go back into the system it came out of; reclaimed product for sale should conform to the original manufacturer's purity specifications.
  - ✓ Facilities must hold an extinguishing agent trading authorisation, or in the case of halon, a halon special permit.
  - ✓ Technicians operating recovery, reclaim, recharge (fill) and recycling equipment for scheduled ODS and SGG extinguishing agents must hold an EAHL 4.
  - ✓ To avoid contamination, operations involving the recovery and recycling of scheduled ODS or SGG extinguishing agents should be kept separate from new agent used for initial filling of gaseous system containers and fire extinguishers.
  - ✓ Product that requires advance reclamation due to contamination (high NCG, or other FP halocarbon contaminants) should be performed by companies with robust separation and lab testing capabilities.

Responsible End of Life Management Continued

What is it?

- **Handling & Storage**
  - ✓ Facilities storing bulk scheduled ODS and SGG extinguishing agents must hold an extinguishing agent trading authorisation (EATA) or in the case of halon, a halon special permit (HSP).
  - ✓ Warehousing of scheduled ODS and SGG extinguishing agents stored in ODS and SGG container(s) not in-transit needs to be monitored by a person who holds an EAHL 5.
  - ✓ Transport companies storing in-transit ODS and SGG extinguishing agent containers are not required to hold an EATA
- **Disposal** – as per the Regulations, any scheduled ODS and SGG extinguishing agents may be delivered to any of the following (in made safe condition):
  - ✓ the holder of an extinguishing agent trading authorisation, for example, **National Halon Bank (FREE DISPOSAL).**
  - ✓ the operator of an approved extinguishing agent destruction facility
  - ✓ the officer in charge of a fire station (hand-held halon extinguishers only).

Situation in our own back yard

What are we seeing?

- Stockpiling of cylinders in warehouses (not always safely decommissioned!)
- Underreporting of discharges to the FPIB; human error main source of discharges.
- Some industries transitioning from HFC 227ea (FM200) to alternatives; relinquishing their gas to their FP company service providers.
- Anecdotally high installation HFC 227ea a decade ago, expect to see these systems approach 10-year re-test – will this be the opportunity to move away??
- Precautionary approach, where system owners are not able to transition, they still need to have access to a reliable supply of certified reclaimed product to maintain existing systems (reclamation company should provide lab Certificate of Analysis).
- Not enough /unreliable data available on leakage rates, ODS & SGG recovery rates, despite this, **recovery to avoid emissions** still needs to be the focus of responsible management.
- **Therefore, responsible recovery & end of life management is crucial to avoid harmful emissions, future proof supply thereby allowing industry with time to transition**.

Where to now?

- Ongoing improved education and awareness is necessary – industry knowledge gaps need to be reduced, more field engagement and direct communication to licence holders (FPIB).
- Decommissioning of equipment and responsible end of life management of agents needs to be part of regular communications to licence holders.
  - ✓ Why do I have to recover, where can I take it, what are the costs? Etc
- Our industry has a responsibility to do the right thing and do things right:
  - ✓ Working together with the FPIB & DCCEEW
  - ✓ Working together with appropriately qualified service providers to avoid emissions by responsibly recovering, recycling, reclaiming, re-charging and disposing.
  - ✓ Working towards moving to lower GWP alternative agents.

Thank you

ELVIRA NIGIDO

A-GAS GROUP SUSTAINABILITY COMPLIANCE MANAGER

elvira.nigido@agas.com