

CFCs: containment and recovery

THE PRODUCTION of CFCs may be coming to an end but there are still huge quantities contained in many existing appliances.

Concern at the environmental damage being caused by these ozone-depleting chemicals escaping from dumped refrigerators and freezers was the catalyst for a national Forest and Bird survey earlier this year investigating the management of CFCs and similar substances.

maximum efficiency rather than the security of the refrigerant gases. The result is that the mass of very thin tubes and fins of refrigerators and freezers are fragile and easily damaged. Many dumped units either leak before they reach the landfill or the gases are released when scavengers dismantle the system for aluminium and copper.

There are even reports of retailers, who dispose of a large number of fridges and freezers, deliberately cutting condenser pipes – and releasing the refrigerant into the atmosphere – to make the units unserviceable.

ers, the refrigerant from domestic refrigeration units comes in small amounts, and is often contaminated and not suitable for recycling or reuse.

The most environmentally acceptable option is recovery and containment until destruction is possible some time in the future. The Ministry for the Environment is currently investigating future options for storage and destruction of ozone depleting substances, especially halons which are up to ten times more destructive than CFCs.

Although the Ozone Layer

Protection Act includes fines for those who knowingly release ozone-depleting chemicals into the atmosphere, no prosecutions have ever been laid. Nor are there any requirements for recovery to take place. As a result there are few operators in the refrigeration and air conditioning industries who have the equipment or the work practices to prevent CFCs from being released during servicing or decommissioning of units – despite a number of recovery units being available in New Zealand.

This situation makes a nonsense of both the legislation and a recently released government code of practice which aims to reduce CFC emissions during servicing. In Australia all refrigeration mechanics must attend a training course before their companies can be licensed to work on systems containing CFCs.

New Zealand does not produce CFCs but only imports them. Our ozone policy has a singular focus – the implementation of phase-out schedules for the importation of ozone-depleting chemicals. Since the policy was released in 1989 the government has consistently predicted that market forces would ensure that chemicals were not released into the atmosphere.

The theory was that as import quotas diminished, the supply of CFCs would contract, prices rise and suppliers would adopt efficient management practices to conserve these chemicals. The reality is that the price of CFCs in New Zealand hasn't risen at all since quotas were introduced. Ozone-depleting imports have fallen by 67 percent since 1986 but much of this reduction is due to a ban on their use in aerosols and a major buy-up of CFCs before controls took effect in 1990. There is no evidence of the industry having made any significant attempts to recover refrigerants.

Rising international concern over the effects of continued depletion of the ozone layer and the slow pace of development of non-depleting alternatives is shifting the argument in favour of a very swift global phase-out of the production of CFCs. As we know, CFCs can persist in the atmosphere for up to 100 years, so ozone depletion will not cease when the production of those chemicals stops in two to five years. The worry is that unless governments and industry are prepared to move swiftly to implement mandatory recovery of CFCs and halons the damage will be greater and continue even longer.

Customers can help to persuade the industry to clean up its act by ensuring that companies have the equipment necessary to recover refrigerant before agreeing to let them work on refrigeration and air conditioning systems.

Any confirmed sighting of someone servicing units or deliberately cutting pipes without first attempting to extract refrigerants should be immediately reported to the Ministry of Commerce. In Western Australia a complaint from a member of the public to this effect led to the first successful conviction and fine and was instrumental in convincing the industry to take recovery seriously.

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Capital Power's Dennis Hansen attempts to retrieve CFCs from refrigeration units at Wellington City Council's Happy Valley landfill earlier this year. Many units were being damaged in the dumping process, with CFCs leaking out before they could be recovered. The council has since improved its collection procedures.

The results of the survey of management practices at landfills looked encouraging at first, as close to a quarter of all councils responded that they were either already removing refrigerants from dumped units or planning to do so soon.

But on digging a bit deeper we found that in many cases recovery was not occurring or that the recovery systems were failing to prevent most CFCs from being released into the atmosphere.

Because CFCs were originally thought to be inert (and still are at ground level), cooling systems were designed for

At the drop-off site at Wellington's Happy Valley landfill less than 20 percent of units still retained some CFCs when the contractor arrived to drain them. In an innovative move the Wellington City Council is now consulting with retailers on the viability of a recovery scheme where units would be drained before delivery to the landfill.

Successful recovery requires appropriate equipment, trained staff, a secure drop-off site and public education, and even then the results are mixed. Unlike commercial refrigerators, freezers and air condition-