

December 2003



**Friends of
the Earth**

Briefing

Ghost fleet ships, toxicity and PCBs

This briefing:

- Explains why Friends of the Earth has described the ghost fleet vessels as “toxic” with particular regard to PCBs¹;
- Outlines the environmental threats posed by PCBs and the international efforts to destroy them;
- Describes some of the legislative changes taking place which should prevent the import of PCBs to the UK by 2005;
- Reveals that an American Government study shows that the hazardous materials from the ghost ships could have been removed prior to export.

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The “toxic” in the ghost fleet

“Environmental dangers associated with MARAD’s [United States Marine Administration] old, deteriorating ships are increasing daily. These vessels are literally rotting and disintegrating as they await disposal. Some vessels have deteriorated to a point where a hammer can penetrate their hulls. They contain hazardous substances such as asbestos and solid and liquid polychlorinated biphenyls (PCBs).”

“The vessels are deteriorating, contain hazardous substances, and pose an immediate environmental threat.”

Report on the program for scrapping obsolete vessels, US Maritime Administration March 2000.

“Working with our congressional delegation, we will do all we can to bring additional federal resources to bear on this environmental time bomb.”

Governor of Virginia, Mark R. Warner, October 2002

A number of European (and domestic) laws make special provision for the treatment of PCB materials due to their particular risks to human health and the environment.² The European Commission has stated that *“PCBs are classified as probable human carcinogens and produce a wide spectrum of adverse effects in animals, including reproductive toxicity, immunotoxicity and carcinogenicity”*³. The same document also states that: *“... there is considerable public, scientific and regulatory concern over the negative effects on human health and on the environment of long-term exposure to even the smallest amounts of dioxins and PCBs.”*

The 13 ships of the ghost fleet intended to be exported to the UK hold between them almost 700 tonnes of PCBs according to a 2003 study for PRP / Able UK⁴. PCBs were used widely in the ships in cabling, gaskets, insulation and other items. The ships were built in the 1940s, 50s and 60s before controls on the use and manufacture of PCBs existed. PCBs are now understood to be so toxic and long-lived that they are no longer manufactured and they are subject to international agreements on their destruction. Bans on uses of PCBs began as long ago as the 1970s.

The Environment Agency⁵ says of PCBs that:

“PCBs are toxic to fish and other aquatic organisms. Reproductive and developmental problems have been observed in fish at low PCB concentrations, with the early life stages being most susceptible. There is growing evidence linking PCBs and similar compounds with reproductive and immuno-toxic effects in wildlife, including effects on seals and mink.

The ability of PCBs to persist in the environment and to travel long distances through the atmosphere, together with their ability to concentrate through the food chain and exert toxic effects on wildlife and humans, makes them a matter of global concern.”

The Government has recently consulted on a strategy⁶ to reduce human exposure to PCBs. It recognises that breast-fed infants and toddlers exceed the recommended tolerable daily intake of PCBs and dioxins by considerable amounts. It states that a Government Committee on Toxicity concluded that dioxins and dioxin-like PCBs have the potential to cause a wide range of adverse health effects. These are most likely to be associated with low levels of exposures to the developing embryo/foetus. It also states that areas of “high intensity industry” (presumably such as Teesside) tend to have elevated levels of PCBs and dioxins.

700 tonnes of PCB containing material is a significant quantity. There is no complete inventory of solid and liquid PCBs in the UK and therefore no easy way of contextualising this waste as a percentage of total PCB waste in the UK. However the Environment Agency holds a register of PCB-containing equipment which listed around 1,200 tonnes of PCB-containing equipment in 2000 in England and Wales⁷. Much of these were slated to be disposed of by the end of 2000. Solid PCBs may be found in small quantities in buildings. A Swedish study found that PCBs had been used in building built between the 50s and the 70s and that on average 10 kilogrammes of PCBs were found in 6 apartment blocks studied⁸. Friends of the Earth is unaware of any similar British studies. The UK and other North Sea states agreed in 1990 to phase out and destroy remaining identifiable PCBs by the end of 1999 but have failed to do so.

Much of the PCBs in the ghost fleet are intended to be disposed of to landfill. The most heavily contaminated materials will be disposed of by high temperature incineration because UK law recognises that “special provision [is needed] with respect to certain dangerous or intractable wastes”⁹. The Government consultation document on PCBs and dioxins states that:

“PCBs will be released to the atmosphere from historically contaminated soils or sediments or from landfills which may contain PCB from previous disposal of electric appliances. Some measurements indicate that release of ‘historic’ PCB back into the environment may be the most significant contribution to the current atmospheric burden in the UK.”

The consultation document also reveals that around 2 kilogrammes of PCBs are released into the air every year. No estimate has been carried out into how much of the 700 tonnes of PCBs will be released from the landfill and over what period.

International efforts to destroy PCBs

The most significant development in the effort to rid the world of toxic chemicals was the signing of the **Stockholm Convention**¹⁰. The Convention aims to eliminate the 12 most toxic compounds (or groups of compounds) in the world. PCBs are one such group. The UK has signed the convention as has the USA but neither country has yet ratified the Treaty. Once 50 countries ratify the Convention it becomes binding international law. The Stockholm Convention secretariat expects the process to be completed by the middle of 2004. Countries that have ratified the Convention include Canada, Austria, Germany, Iceland and South Africa.

The Convention, amongst other things, seeks to prohibit the import or export of PCBs other than for the purpose of environmentally sound disposal. In this context, the word purpose is

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key. The intention of the Convention is to allow countries without PCB disposal facilities – mostly developing countries - to destroy stockpiles of PCBs by exporting them to countries with appropriate disposal facilities. The ghost fleet ships are not being sent to the UK with the primary purpose of disposing of the PCBs (although large quantities of PCBs remain on the ships they are only a small proportion of the whole ships). The primary purpose of the export is to break up and recycle the ships. Friends of the Earth therefore believes that the export of PCBs in this manner is at least against the spirit of the Convention and may be against the law (when the Convention enters into force in 2004). The Courts will need to clarify this position.

The European Union is giving effect to the Convention through a number of new regulations¹¹, including new regulations on waste shipments¹². The draft waste shipment regulations are currently passing through the European Parliament. The draft regulations make it clear that waste containing PCBs or other chemicals covered by the Stockholm Convention must be treated as waste intended for disposal (even if the purpose of the shipment generally is recovery, as in the case of the ghost fleet ships). The regulation will ban the import of waste containing PCBs and other Stockholm Convention chemicals except from countries without the necessary disposal facilities (clearly the USA has the disposal facilities). Provided this regulation is not amended to make it weaker in coming months it is clear that when this regulation becomes law in early 2005 it will make the further import of PCB containing US ghost fleet ships illegal.

Removing PCBs from the ghost fleet prior to export for recycling

In the USA there is a general prohibition, under the Toxic Substances Control Act, on exporting PCBs in concentrations greater than 50 ppm. However, in this case the US Environmental Protection Agency granted a waiver (enforcement discretion) permitting these ships to be exported despite the presence of large quantities of PCBs above that level. The reason for doing so was one of the cost of removal prior to export.

The Maritime Administration in 1997 calculated how much it would cost to remove hazardous chemicals from ghost fleet ships prior to export for recycling¹³. It suggested that the average total cost would be around \$71 per tonne of ship (including labour and disposal costs). The cost of removing the asbestos prior to export was estimate at \$200,000 per ship.

In the USA, the cost therefore of removing the hazardous waste from the 4 ships currently in the UK or on their way to the UK would have been:

Ship	Ship weight (tons)	PCBs (tonnes)	Approximate cost of removing all hazardous materials (ton x \$71)
Caloosahatchee	15,184	34.1	\$1,078,064
Canisteo	14,705	34.1	\$1,044,055
Compass Island	15,057	47.3	\$1,069,047
Canopus	12,618	286	\$895,878

Restrictions into the use of PCBs did not start coming into force until the 1970s and in some countries not until the mid-1980s. Of 50 ships identified by Greenpeace to be scrapped soon

around 80 per cent were manufactured in the 1970s and 20 per cent in the early 1980s¹⁴. The US Ghost Fleet ships were mostly manufactured in the 1940s, 50s and early 60s. The age difference makes it clear that it is hardly credible to state that the ghost fleet ships are virtually the same as all other ships that are being scrapped – they are older and were built when restrictions on the use of PCBs were not in place.

References

- 1 Although this briefing note focuses on PCBs, they are not the only hazardous materials on the Ships.
- 2 See e.g., Council Directive 96/59/EC on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT); **and** The Environmental Protection (Disposal of Polychlorinated Biphenyls and other Dangerous Substances) (England and Wales) Regulations 2000
- 3 CEC (2001). Community strategy for dioxins, furans and polychlorinated biphenyls. (COM(2001) 593 final).
- 4 Marine Risk Assessment for Post-service Remediation Partners (now a subsidiary of Able UK) by Det Norske Veritas, Sept 2003
- 5 Environment Agency Pollution Inventory fact-sheet
- 6 The consultation document can be found at:
http://www.defra.gov.uk/environment/consult/dioxins/pdf/dioxins_consult.pdf
- 7 The ENDS Report, January 2001, PCB registers reveal sharp decline in stocks. The registers list equipment holding PCBs above 5 litres and 50 parts per million PCBs.
- 8 Umeå University, Department of Environmental Health, Inventory of PCBs in apartment blocks in the municipality of Nacka, Markus Ek at <http://www.bmq.umu.se/samarbeta/D20/MH98-25.html>
- 9 Section 62 of the Environmental Protection Act 1990
- 10 The Stockholm Convention can be found here: <http://www.pops.int/> and a guide to it can be found here: http://www.pops.int/documents/guidance/beg_guide.pdf
- 11 The proposed European regulations can be found here:
http://www.europa.eu.int/comm/environment/pops/index_en.htm
- 12 **Waste: supervision and control of shipments, especially articles 3(5) and 43 at:**
http://wwwdb.europarl.eu.int/oeil/oeil_ViewDNL.ProcedureView?lang=2&procid=7242
- 13 MARAD, Environmental Assessment of the Sale of National Defense Reserve Fleet Vessels for scrapping, Report MA-ENV-820-96003, July 1997., Appendix E.,
- 14 The Greenpeace website is available at: <http://www.greenpeaceweb.org/shipbreak/50-ships.asp>