

WASTE DISPOSAL

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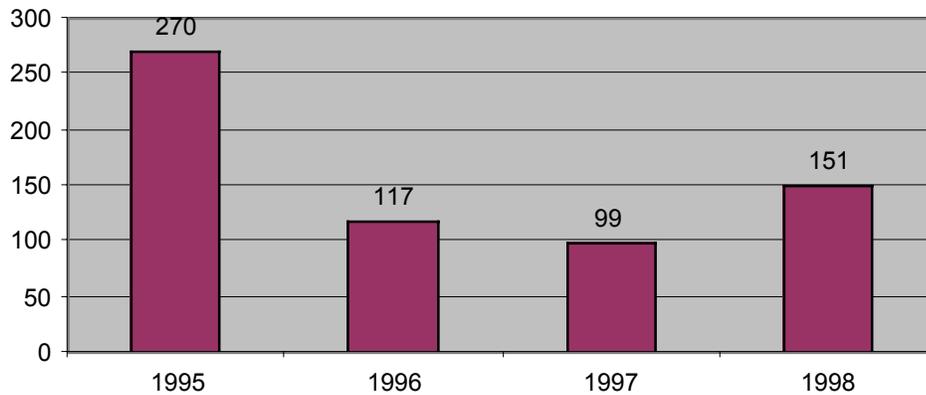
Salvage and Scrap Metal

Since 1994, the Physics Division has disposed of a large amount of obsolete and/or surplus equipment and material. Power supplies that were installed in the 1960/1970 era are being replaced with newer models, which generates wastes in the form of PCB capacitors, PCB-detectable cable, circuit boards, and lots of scrap metal. Because the State of Tennessee regulates PCBs as low as 2 ppm, we must take great care in disposal of materials that are PCB-detectable (2 – 49 ppm PCBs). Although these materials are not regulated under the Toxic Substances Control Act (TSCA), improper release or disposal could lead to regulatory enforcement action or litigation.

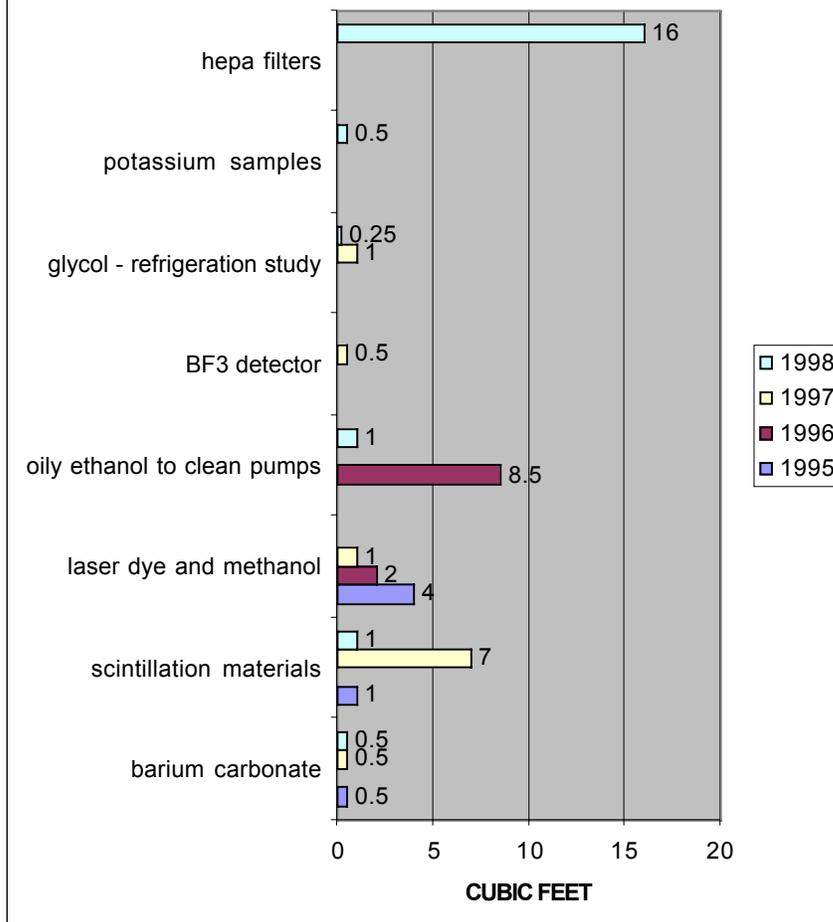
Legacy Wastes

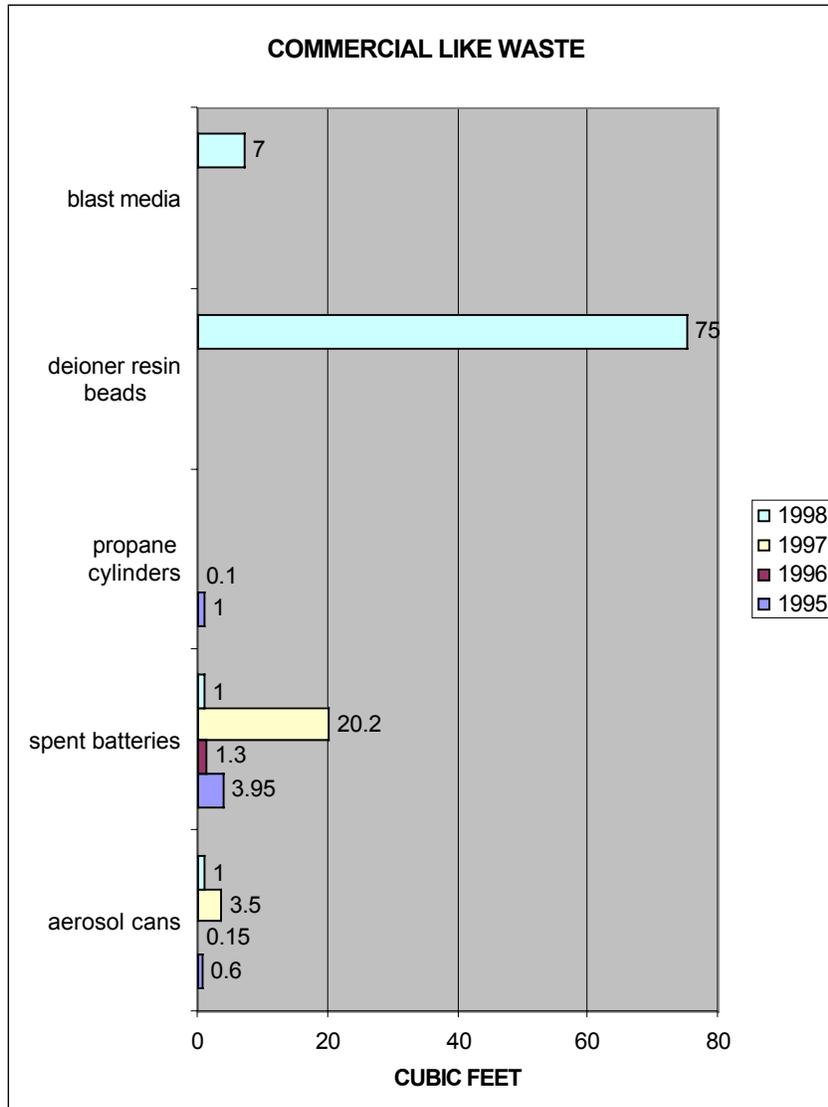
The backlog of legacy waste that has accumulated over the years has been substantially reduced. Beginning in FY00, all waste management costs will be billed directly to the waste generating organizations. Eliminating the backlog of legacy wastes has saved the Division considerable money and trouble. An example is the projected waste costs for the remainder of FY99 - our Division costs of about \$10,000 are the lowest in the Directorate primarily because we eliminated most of our legacy waste while charges to the Division were low. And as a result of participating in ORNL discussions of waste management programs we understand the system well enough to know how to get rid of present waste in the most cost-effective manner.

LEGACY WASTE (by incidence, not volume)



RESEARCH SPECIFIC WASTE





Trimethylbenzene

1360 gallons of excess trimethylbenzene used in a scintillation detector tank at the 150-meter station at ORELA and 500 gallons of used oil were transferred to the TSCA incinerator on February 7, 1998. Special arrangements were made for a tanker truck to consolidate and transfer the shipment of wastes. One composite sample was taken from a representative number of the waste drums to minimize costs. Approximately \$10,000 was spent on analytical work. At \$5,000 per container, it would have cost over \$100,000 if each drum had been sampled and processed individually.

Disposing of the trimethylbenzene eliminated a concern with an “inactive system,” the scintillation detector tank, containing a RCRA regulated material beyond 90 days.

Westinghouse (PCB) Transformer

The old Westinghouse transformer in Building 6000 was dismantled and disposed of in October 1997. This eliminated the only true PCB transformer remaining at ORNL.

Ion-Exchange Resin Beads

In April 1998, the Physics Division received approval from the State of Tennessee to dispose of used ion-exchange resin beads in the Y-12 Industrial Landfill. This culminated several years' work towards identifying an acceptable disposal site for the material. In 1995, the Physics Division learned that Culligan would no longer regenerate our used ion-exchange resin beads because of elevated levels of copper, iron, and zinc (presumably from old process piping in the HRIBF) in the spent beads. The used beads were analyzed and a request was made through the ORNL Office of Environmental Protection to the State of Tennessee, seeking approval to dispose of this “special waste” in the landfill. Disposal costs for the Y-12 Landfill are in the order of \$56 per cubic yard, as compared to \$110 - \$350* per 55 gallon drum for off-site landfill disposal, as arranged by the Waste Management Organization.

*ChemPack Lockheed Martin pricing index, dated Nov 1995.

Recycling

The Physics Division initiated aluminum can and paper recycling in Building 6000 in December 1997. Other division facilities had already been participating in these recycling programs for some time. In addition to paper and cans, the Physics Division recycles fluorescent lightbulbs and lead acid batteries through the Plant & Equipment (P&E) Division program, cardboard, packaging peanuts, circuit boards, lead, scrap metal, and excess chemicals (See Hazardous Materials).

No Rad Added Issues

The No Rad Added (NRA) Program was implemented at ORNL in 1996. In order to ship hazardous waste off-site for treatment, storage, or disposal at commercial facilities not licensed to manage radioactive or mixed wastes, hazardous waste generating organizations are required to certify that no radioactivity has been added to the waste as a result of DOE operations. Radiological Material Management Areas (RMMAs) are used to identify areas where wastes have the potential for radioactivity added. Hazardous wastes removed from RMMAs must be surveyed and, using a combination of process knowledge and sampling and analysis, characterized for disposal. The Physics Division uses gamma spectroscopy to characterize radioactive wastes. The Division has received approval to use gamma spectroscopy to make a NRA determination for "free release" of spent lightbulbs from RMMAs. No other wastes have been approved for free release using this methodology at this time.

At the request of the Physics Division, LMES Waste Management conducted a life-cycle analysis of Phillips Alto low-mercury fluorescent lightbulbs for use in Radiological Material Management Areas (RMMAs). In October 1996, the Office of Environmental Protection issued guidance to the Physics Division related to disposal of the low mercury bulbs. Since the low-mercury bulbs do not fail the RCRA TCLP test, they should not have to be managed as hazardous waste. However, the Y-12 Industrial Landfill would have to receive special permission from the State of Tennessee (and alter the landfill permit) to accept these bulbs. Therefore, the spent bulbs meeting green tag limits will be included in the P&E Division recycling program. Using non-RCRA lightbulbs in RMMAs eliminates a potential mixed (RCRA/rad) wastestream and associated disposal costs.