

**THE DEPARTMENT OF ENERGY'S HOMELAND DEFENSE
EQUIPMENT REUSE PROGRAM**

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ABSTRACT

In the aftermath of September 11, 2001, Police, Fire, and other emergency responders did not possess the resources necessary to detect and respond to radiological weapons. In response to President Bush's call for Americans to assist in the war on terrorism, the Department of Energy Office of Assets Utilization initiated a program to reallocate surplus radiological detection equipment destined for disposal to security agencies across the country – the Homeland Defense Equipment Reuse Program. To date approximately in excess of 8,400 instruments have been deployed saving DOE more than \$300,000 in disposal costs and the first responders over \$2.8M in acquisition costs.

INTRODUCTION

In the aftermath of September 11, 2001, an array of potential threats to America emerged, including the possibility of attack with a radiological weapon, such as a dirty bomb. Police, Fire, and Rescue workers, and other emergency responders located in major metropolitan areas, did not possess the resources necessary to detect and respond to these weapons in a timely manner. In response to President Bush's call for Americans to assist in the war on terrorism, the Department of Energy (DOE) Office of Assets Utilization (AU) initiated a program to reallocate surplus radiological detection equipment destined for disposal to security agencies across the country – the Homeland Defense Equipment Reuse (HDER) Program. Thousands of instruments have been received by the program from across the United States, with more than 8,400 instruments having been refurbished and deployed. The remaining instruments have either been recycled or held in inventory for parts or future deployment. These efforts have saved DOE at least \$300,000 in disposal costs and the first responders a minimum of \$2.8M in acquisition costs.

A variety of equipment to measure the presence of radiation is available through the HDER Program. Most of the instruments were used in DOE cleanup operations across the country and became surplus after the jobs were completed. Others were replaced by more sophisticated equipment but are still valuable to first responders. If left at the DOE sites, this surplus equipment would have been disposed of either as a hazardous waste or a mixed waste. AU is ensuring that the equipment received from the DOE sites is evaluated and refurbished prior to deployment. See Figures 1 and 2 below.

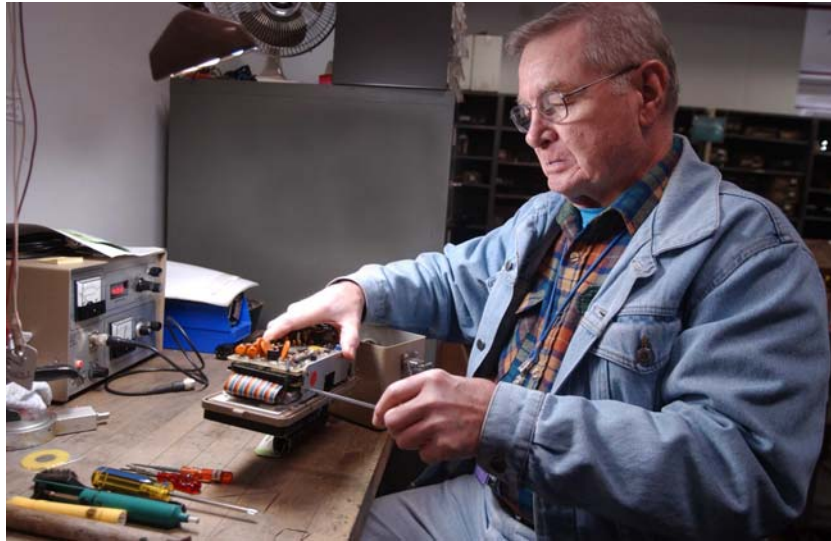


Fig. 1 Technicians check and refurbish equipment as needed.



Fig. 2 Instruments and equipment are inventoried as they are received.

Equipment that is not made available for reuse is recycled. The Department of Homeland Security (DHS) Office for Domestic Preparedness (ODP) then works with established contacts in each state to identify appropriate users in their local emergency responder communities, and DOE delivers the equipment to these jurisdictions at no cost.

Training on the use of the equipment is available to the emergency responders through ODP's Domestic Preparedness Equipment Technical Assistance Program (DPETAP). If requested, DPETAP provides detailed technical information and hands-on equipment operation and maintenance training. Local support for the equipment, including calibration, maintenance, and follow-on refresher training, is available through a partnership with the Health Physics Society, a 6,000 member national organization of radiation safety professionals.

The pilot phase for the HDER Program began on July 1, 2002. It was coordinated with the states containing the nations 10 largest metropolitan areas, which include: Boston, Chicago, Dallas, Detroit, Houston, Los Angeles, New York City, Philadelphia, San Francisco and Washington D.C. Over 1,600 instruments were deployed during the pilot phase of the program. With this success the Program was initiated Nation Wide in June 2003. Since then an additional 6,900 instruments have been deployed. See Table I below.

Table I Shipments Made to First Responders

Fiscal Year	No. Of Shipments	No. of Inst. Deployed	Acquisition Savings
FY2003 Pilot	19	1,665	\$ 929,651
Remainder FY2003	12	1,126	\$ 1,350,844
FY2004 to Date	11	5,798	\$ 1,466,410

The Department of Energy (DOE) is proud to help ensure that our law enforcement and emergency personnel have the necessary equipment and training to prepare them to respond effectively and thoroughly to any emergency. We are pleased to again provide DOE resources to help ensure America's homeland defense, said Secretary of Energy Spencer Abraham.

BACKGROUND

This equipment recycle/reuse program marks one of the earliest applications of DOE capabilities to the cause of domestic preparedness, demonstrating DOE's ability to respond quickly to America's changing priorities using existing resources. In this particular case, the resource, surplus radiological equipment, was previously considered a liability, adding further value to this innovative program.

In this first-of-a-kind program, DOE and DHS have forged a unique partnership not often seen among government agencies. The recycle/reuse of this equipment is being done through an innovative inter-agency agreement that clearly outlines each organization's responsibilities. In this important relationship, DOE is supplying the equipment while DHS is providing training and long-term stewardship of the equipment as well as serving as liaison with first responder organizations in major U. S. cities.

The success of this program relies on other key participants as well - 13 DOE sites and the Environmental Protection Agency (providing surplus instruments), The Oak Ridge National Recycle Center (equipment assessment, rehabilitation, and recycle), the Oak Ridge associated Universities/Oak Ridge Institute for Science and Education (expert consulting and equipment calibration), the Health Physics Society (long-term stewardship) and AU's support contractor Frankie Friend and Associates (day-to-day logistical support). Each of these participants lends specific technical expertise necessary for this program to succeed. The approach to managing the recycle and redeployment of the instruments given the number and variety of participating organizations required a fresh approach to management.

BENEFITS

By providing equipment and training in the HDER Program, DOE is conferring a capability rather than just property. First responders in the field have reacted positively to the receipt of the equipment because it gives them the tools they need to prepare for radiological terrorist threats in their communities. As stated by U. S. Representative Zach Wamp, This was a grass roots effort among employees that truly helped our nation. Once again, Oak Ridge has stepped up to the plate to assist with national security. The first shipments of equipment, delivered in August 2002, included 47 pieces of equipment for Washington, D.C., 101 pieces for Philadelphia and 27 pieces of equipment for a DHS contractor to be used for training. By the end of the pilot phase, a total of 1,600 instruments were sent to all ten of the Metropolitan Cities attesting to the demand for this program. In addition to these shipments, this program has deployed over 200 instruments to the Department of State to be used in their Radiation Safety Without Borders Program in conjunction with the the International Atomic Energy Agency. The Radiation Safety Without Borders Program is the international equivalent to the HDER Program and helps to mitigate the smuggling of nuclear components and radioactive materials across borders.

In addition to its direct benefits in terms of national security, this cooperative effort has resulted in significant cost-saving and waste reduction benefits as well. For as little as \$20 a piece for refurbishment and initial calibration, radiation detection equipment ranging from \$1,500 handheld units to \$33,000 whole body monitors is being returned to service to state and local emergency agencies. Figures 3 and 4 below depict the types of instruments and other equipment deployed. The value of the program has already been noted by the Partnership for Public Service through its Service to America awards program. This national awards program designed to recognize high impact accomplishments of federal employees, honored HDER (a finalist in the National Security and International Affairs Category) as a model collaborative program that fosters U.S. security at extremely low cost.



Fig. 3 Instruments are stored in inventory until they are requested for deployment.



Fig. 4 Instruments are pulled and check prior to deployment to State Agencies.

The HDER Program also allows DOE to avoid costs associated with storage and disposal of surplus radiation detection instrumentation. DOE must perform costly facility surveillance and maintenance and inventory management of this unused equipment until final disposition. The proper disposal of electronics generally involves macro encapsulation to ensure that leaching of hazardous materials does not occur, with disposal costs averaging \$40 per unit. Disposal can also be costly to the environment if is not done properly. When electronics like radiation detection instruments are landfilled, chemicals and heavy metals in the equipment can leach out, potentially contaminating the groundwater, harming the environment, and affecting the local community.

CONCLUSION

To date, the HDER Program has amounted to cost avoidance to DOE in excess of \$300,000. The cost avoidance due to acquiring used radiation detection equipment instead of purchasing new has saved DOJ and the first responder organizations a minimum of \$2.8M.

The HDER Program can be an inspiration to other government agencies, encouraging them to re-evaluate their resources and turn liabilities into assets. It can also serve as a model in its use of interagency cooperation to achieve its goals, specifically those related to homeland security. As Attorney General John Ashcroft said, "The HDER Program is an excellent example of federal agencies and private organizations working together to address a critical domestic preparedness issue. This program demonstrates the administration's commitment to equipping those on the domestic front lines – our state and local emergency first responders – in the nation's effort to prevent future terrorist attacks".