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## **NUCLEAR WASTE PILING UP AT U.S. HOSPITALS**

No Long-term Disposal Plan in Place for Millions of Radioactive Devices

BARNWELL, S.C. — Tubes, capsules and pellets of used radioactive material are piling up in the basements and locked closets of hospitals and research installations around the country, stoking fears they could get lost or, worse, stolen by terrorists and turned into dirty bombs.

For years, truckloads of low-level nuclear waste from most of the U.S. were taken to a rural South Carolina landfill. There, items such as the rice-size radioactive seeds for treating cancer and pencil-thin nuclear tubes used in industrial gauges were sealed in concrete and buried.

But a South Carolina law that took effect July 1 ended nearly all disposal of radioactive material at the landfill, leaving 36 states with no place to throw out some of the stuff. So labs, universities, hospitals and manufacturers are storing more and more of it on their own property.

“Instead of safely secured in one place, it’s stored in thousands of places in urban locations all over the United States,” said Rick Jacobi, a nuclear waste consultant and former head of a Texas agency that unsuccessfully tried to create a disposal site for that state.

State and federal authorities say the waste is being monitored, but they acknowledge that it is difficult to track and inspected as little as once every five years. Government documents and dozens of Associated Press interviews with nuclear waste generators, experts, watchdogs and officials show that thousands of these small radioactive items have already been lost, and that worries are growing.

### **Flea markets and eBay; landfills and recycling plants**

“They’ll end up offered up on eBay and flea markets and sent to landfills, or metal recycling plants — places where you don’t want them to be,” said Stephen Browne, radiation control officer at Troxler Electronic Laboratories, one of the world’s largest manufacturers of industrial gauges that use radioactive material.

There are millions of radioactive devices in use for which there is no long-term disposal plan. These include tiny capsules of radioactive cesium isotopes implanted to kill cancerous cells; cobalt-60 pellets that power helmet-like machines used to focus radioactive beams on diseased brain tissue; and cobalt and powdered cesium inside irradiation machines that sterilize medical equipment and blood.

Most medical waste can simply be stored until its radioactivity subsides within a few years, then safely thrown out with the regular trash. Some institutions store their radioactive material in lead-lined safes, behind doors fitted with alarms and covered with yellow-and-black radiation warning signs.

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Over the past decade, however, 4,363 radioactive sources have been lost, stolen or abandoned, according to a Nuclear Regulatory Commission report released in February. Though none of the material lost was rated “extremely dangerous” — meaning unshielded, up-close exposure can cause permanent injury within a few minutes and death within an hour — more than half the radioactive items were never recovered, the NRC said.

Since the Sept. 11 attacks, owners of dangerous amounts of radioactivity have been told by the government to take greater precautions, such as having 24-hour surveillance, erecting barriers and fingerprinting employees, regardless of whether the devices are in use or stored as waste.

### **Close to a crisis?**

Yet in 2003, the federal Government Accountability Office reported there wasn't even a record of how many radioactive sources existed nationwide. In June, the GAO concluded that while there has been progress, more must be done to track radioactive material to prevent it from falling into terrorists' hands and ending up in a dirty bomb, or one that uses conventional explosives to scatter radiation.

“I don't think we're yet in crisis, but certainly there's information out there to suggest we may be closer to that than is comfortable for me,” said Gregory Jaczko, a commissioner with the NRC, one of the agencies charged with tracking the material.

In 1987, four people died and hundreds fell ill after looters in Brazil found a cancer-therapy machine in an abandoned medical clinic and sold it as scrap metal. More recently, 19 small vials of cesium-137, implanted for cervical cancer treatments, disappeared in 1998 from a locked safe at Moses Cone Memorial Hospital in Greensboro, N.C. The tubes were never found and were believed stolen.

A terrorist would need to gather far more of those vitamin-sized capsules to create a dirty bomb capable of killing anyone within one city block, said Kelly Classic, a health physicist at Mayo Clinic in Minnesota.

For decades, the government urged states to build low-level nuclear waste landfills, either on their own or in cooperation with nearby states. But those efforts have run into strong not-in-my-backyard resistance of the sort that led South Carolina lawmakers to close the Barnwell County landfill to all but three states. Only one low-level landfill, in Utah, has opened in the past 30 years. One more could open in Texas by the end of next year, but it would accept trash from only Vermont and the Lone Star State.

The government never set up penalties for states that failed to build landfills.

“Congress should have gotten involved a long time ago,” said Richard Gallego, vice president of Thomas Gray and Associates Inc., a California company that prepares low-level waste for disposal.

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Rich Janati, chief of nuclear safety for Pennsylvania's Department of Environmental Protection, said: "It's a national issue, and we should look at it as a national problem and come up with a solution."

The government this week did move to shore up security by requiring hospitals and labs to better secure machines used to irradiate blood. Also, dirty-bomb fears have prompted the National Research Council to urge replacing the roughly 1,300 such machines in the U.S. with less hazardous but more expensive equipment.

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