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'Dirty bomb' fodder vulnerable

By [Chris Osher](#)

TRIBUNE-REVIEW

Sunday, June 23, 2002

Nine months after Sept. 11, America is not keeping track of low-level radioactive waste — the stuff terrorists could use to build the crudest of "dirty bombs."

Hundreds of devices containing radioactive material are reported missing each year, and federal officials say they don't have the resources to collect all the old radiation-laden equipment that private industry has nowhere to bury.

The issue took on new urgency this month after a man was arrested on suspicion of plotting a dirty-bomb attack on the United States. A dirty bomb is a conventional explosive laced with radioactive material meant to spew over a wide area. While not immediately lethal, like an atomic bomb, a dirty bomb could leave radioactive contamination with devastating long-term consequences.

"The whole question of what could be used for a dirty bomb is now getting a much higher level of attention," said Neil Sheehan, a spokesman for the Nuclear Regulatory Commission. "The difficulty is that we live in a society where there are 2 million sources out there in active use. Controlling that is a formidable task."

Radioactive material is used in medical devices, scientific instruments and even construction equipment. Many of these devices are not under lock and key. A terrorist cracking open that equipment to obtain the radioactive material could do so in many cases without receiving a lethal dose, according to scientists who studied the issue at Los Alamos National Laboratory.

The low-level radioactive waste cannot cause a chain reaction or explosion like that of a nuclear weapon. It can be found on gowns and gloves used to work with radioactive material and in dismantled parts from nuclear power plants. It also can be byproducts from hospitals, food-irradiation plants and nuclear-weapons production. Some of that waste quickly becomes

harmless; some retains its potency for hundreds of years.

Nobody can say how much of the waste there is, where it is or how radioactive it is. Like highly radioactive material, can cause cancer and death.

Photo Gallery

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[Restricted-access room at Mercy Hospital](#)

Philip G. Pavely/Tribune-Review

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"This is going to thousands of hospitals and thousands of universities," said Marshall Drummond, chancellor of the Los Angeles Community College District and a former member of the National Academy of Sciences. "Once it gets sent to where it is going, it is spread to hell's half-acre."

The lack of accountability makes the nation vulnerable, he said.

"I don't think anybody has denied that there is a glitch in the system," he said. "We want to make sure that it is better controlled and really tighten it up so it can be properly audited."

Officials at the region's main hospitals, including Allegheny General, West Penn, Mercy and the UPMC system, insist they abide by federal regulations and restrict access to storage areas for radioactive materials. They said the Nuclear Regulatory Commission licenses the hospitals and conducts surprise visits to ensure compliance.

"Those sources are not in places where the public can get access to," said Sylvia Lesic, director of radiation at Pittsburgh Mercy Health System. "We feel our risk is very minimal of somebody being able to get out the stuff that dirty bombs are made of."

Less powerful elements such as radioactive iodine, used to treat thyroid problems, lose any harmful levels of radiation in days, Lesic said. Those that are more toxic — such as cobalt and cesium to treat cancers — are stored in protective containers that are heavy and difficult to carry. The materials that take longer to decay are picked up at hospitals by the companies that sell them, she said. Those companies then are responsible for disposal.

LESS OBVIOUS SOURCES VULNERABLE

Terrorism experts aren't focusing their concerns on high-level radioactive waste, such as the spent fuel rods from nuclear power plants or weaponry material, as a source for dirty bombs. Two years ago a nuclear power plant in Connecticut reported the only known case of losing spent rods. And dealing with such rods and weapons-grade material likely is beyond the expertise of terrorists, federal officials say.

"Spent fuel rods are at nuclear power plant sites that are heavily protected and have raised their security since Sept. 11, and anyone who came into contact with those spent fuel rods would be exposed to a lethal dose," said Victor Dicks, spokesman for the Nuclear Regulatory Commission.

A food-irradiation plant typically holds hundreds of cobalt "pencils," which are about an inch in diameter and a foot long. According to congressional testimony by the American Federation of Scientists, a terrorist exploding 10 pounds of TNT and a single piece of that radioactive cobalt would make New York City uninhabitable for decades.

Dicks discounts that scenario, though.

"Nuclear irradiators, like cobalt-60, are protected by security measures," he said. "They are parts of devices that are heavily shielded. Even brief exposure would cause lethal doses and would kill anyone attempting to remove it."

Federal officials say they are especially worried about radioactive equipment discarded by the oil and construction industries and lower-level radioactive waste generated by industries, utilities and academic institutions.

"Significant quantities of radioactive material have been lost or stolen from U.S. facilities during the past few years, and thefts of foreign sources have led to fatalities," Henry Kelly, the president of the Federation of American Scientists, testified in March before the U.S. Senate Committee on Foreign Relations. "In the U.S., sources have been found abandoned in scrap yards, vehicles and residential buildings."

A terrorist could harvest the material without receiving a lethal dose, according to scientists at Los Alamos National Laboratory. The explosion generated by this type of industrial material would force costly evacuations and cleanups in large swaths of urban areas, Kelly testified.

"This stuff does pose a serious threat if it is misused by terrorists," said Leroy Leonard, a Los Alamos project manager who is helping the federal government collect and dispose of such equipment. "It is now an inventory that is vulnerable to misuse. The urgency to get it off the streets to those of us responsible for it has increased."

Experts worry that security in foreign countries is even weaker than in the United States. In September 1987, scavengers broke into an abandoned cancer clinic in Brazil and pillaged

radioactive material, contaminating themselves. About 250 people were exposed to radiation, and four died. In 1995, Chechen rebels placed in a Moscow park a shielded container holding the radioactive cesium-137 core from a cancer-treatment device. They then tipped off Russian reporters to its location.

MATERIALS FOUND IN YARDS, CLOSETS

Joel Grimm is in charge of the federal program that gets rid of the castoffs from private industry that could be used in a dirty-bomb attack.

"Somebody who knew what they were doing would be able to get what they needed," Grimm said recently.

The Off-Site Source Recovery Project that Grimm manages for the U.S. Department of Energy has found abandoned medical devices and construction equipment — all containing deadly material for a dirty bomb — stashed in closets, backyard sheds, even garages.

Once, the owners of a defunct company that used gauges containing deadly radioactive americium used to map oil wells asked his agency for help in getting rid of the equipment. Grimm's staff found the gauges buried in polyvinyl chloride pipes sticking out of the ground in a back yard. In another case, the owners of a bankrupt company piled the same type of equipment in a truck they abandoned in a Chicago-area parking lot. They left a note alerting authorities and then fled to Costa Rica.

In each instance, if the radioactive material had been used to build a dirty bomb, the explosion would have contaminated at least 60 city blocks beyond acceptable limits, according to congressional testimony.

DISPOSAL, TRACKING MEASURES LAX

Grimm's agency is struggling to collect and dispose of the known 5,300 old radioactive devices scattered in warehouses, closets, back yards and dumps throughout the nation. These devices have the potential to emit radiation in excess of limits considered safe for commercial dump sites. By law, the federal government must dispose of them at a single site in New Mexico. More than half the equipment contains radioactive powder, the type of material most prized by terrorists because it is the easiest to disperse in the wind, he said.

Grimm concedes, though, that far more material could be awaiting collection, but he has no way of knowing because his agency relies on industry to voluntarily report problems. Nobody knows for sure how many businesses illegally toss aside dangerous devices, avoiding costly environmental regulations, Grimm said.

His agency's annual budget for this year is just under \$3 million, down from \$7 million for the fiscal year that ended in August 2000. Next year, it's slated to go down to \$2.2 million.

The declining funding concerns the Federation of American Scientists, a nonprofit organization based in Washington, D.C., dedicated to ending nuclear arms, said Jamie Yassif, a research associate there.

Yassif said industry does a good job of protecting the devices as long as the devices are still in use.

"However, once there ceases to be an economic incentive for the materials, the likelihood of abandonment or theft or accidental loss increases," she said.

Grimm's agency at least knows the location of those radioactive items industries have asked the government to bury. The difficulty is in tracking radioactive material reported missing.

Sheehan, the Nuclear Regulatory Commission spokesman, said that annually more than 300 such devices — which he could not describe — are reported missing to the federal government. Only about 150 of those are found each year, he said.

The federal government also has no system for tracking how much low-level radioactive waste is generated each year.

That's because the government — except in instances involving nuclear power plants — assumes the amount of waste buried is the amount of waste generated.

"Obviously they should be keeping track of what's generated, and that should be reported and that should be something regulators have a handle on, but they don't," said Diane D'Arrigo, the radioactive-waste program director of the Nuclear Information Resource Service. "There's no way to really know if anything slips out."

Ron Fuchs, a recently retired Department of Energy official, used to track how much waste went to disposal sites. The information is of little use to regulators, he said, because under an agreement with burial sites, the federal government does not tabulate the data to identify where the waste came from.

Last year, the funding for the project dried up, forcing the federal government to temporarily stop collecting the information, he said. The money only recently was restored, he said. He thinks the government needs to do more, including getting a handle on how much waste actually is generated each year.

"But there has to be some sort of funding source to pay for that because it is a monumental task," he said.

PROBLEMS UNCOVERED DECADES AGO

The General Accounting Office, the congressional agency that audits federal programs, found the tracking system lacking more than 20 years ago. In 1980, the agency reported: "Without a method to track waste from the point of generation to the point of disposal, it is highly probable that illegal dumping occurs."

Some of this waste, such as the radioactive iodine used to treat thyroid problems, is used in small doses and becomes harmless within days. Other substances, such as cobalt, cesium, uranium and plutonium, remain potent far longer.

Although industrial waste generators are subject to inspections, critics contend the inspection system is faulty because the work is spread among a patchwork of federal and state agencies. Anti-nuclear groups also complain that the Nuclear Regulatory Commission, which in 1974 was spun off from the Atomic Energy Commission, has failed to fulfill its regulatory duties.

"In recent years it seems more and more that the NRC is acting as an advocate for the industry," said Edwin Lyman, of the anti-nuclear power Nuclear Control Institute. "It was meant to be independent of the promotional part. But NRC recovers most of the fees from the industry licenses, and that creates difficult situations."

The NRC retains authority to conduct inspections in 18 states, including Pennsylvania, but not in the 32 other states.

The General Accounting Office raised concerns about this system almost 10 years ago. A 1993 report found that the commission had failed to discipline deficient state programs. In fact, that report stated, only Idaho had ever had its radioactive program terminated, and it was by the governor, not federal authorities.

Pennsylvania relies on the federal agency to do much of the inspection work. In fact, Pennsylvania has started requiring low-level radioactive waste generators to report less information, not more.

Rich Janati, chief of the Division of Nuclear Safety in the Pennsylvania Department of Environmental Protection, said that two years ago, his office used to require waste generators to file detailed reports of their waste for comparison to what burial sites reported receiving.

Now, the state requires reports that don't even specify volumes shipped, he said. For now, he relies on the federal commission's inspections to ensure that generators keep proper records. With a staff of one full-time worker and two part-time workers, Janati is planning to take over the inspection duties from the federal government soon.

"We trust the system," he said. "The system has been so accurate in the past that we don't believe we have to get the detailed reports from them anymore."

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