

NRC wants businesses to keep track of tritium ABOUT TRITIUM

Missing tritium exit signs point to NRC concerns about keeping track of radioactive materials

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Last fall, Wal-Mart reported that several stores in Virginia, including the Fredericksburg store at Central Park, had been unable to locate exit signs containing a radioactive material.

Missing signs are not usually much of a concern, but in the post-9/11 world, it has become an issue for Wal-Mart and others as the Nuclear Regulatory Commission keeps stricter tabs on all types of radioactive substances.

The signs contain tritium, a radioactive hydrogen isotope, which causes them to glow in the dark.

After a five-month inventory of all its stores and warehouses, Wal-Mart found that more than 15,000 tritium signs were missing or unaccounted for.

In a "demand for information" issued yesterday, the NRC asked 62 other organizations possessing 500 or more tritium signs to report, in writing, within 60 days, the number of signs they possess; reasons for any discrepancies; actions taken or planned to locate any missing signs; and plans to prevent future losses.

Identified through the agency's General License Tracking System, the list includes large retailers, churches, federal and state agencies, school districts and universities, among others.

The NRC emphasized that the minimally radioactive signs pose little or no threat to public health and safety, and are not a security risk.

But the NRC requires proper record keeping and disposal of all radioactive materials.

"Wal-Mart's inability to account of all the tritium exit signs the company purchased demonstrates that organizations may not be fully aware of the regulatory requirements for owning these signs," said George Pangburn, deputy director of the NRC's Office of Federal and State Materials and Environmental Management Programs.

Wal-Mart spokeswoman Daphne Moore said the company has replaced all the tritium signs with LED and phosphorescent models.

"Due to the regulatory environment," she said, the tritium signs were no longer cost-effective.

Between 2000 and 2007, Wal-Mart purchased about 70,000 tritium signs. It began an audit in 2006 when it was discovered some were missing.

Along with the Fredericksburg store, Wal-Marts in Harrisonburg, Williamsburg, Norfolk and Norton reported lost or missing signs.

Scott Burnell, a spokesman for the NRC, said yesterday that with one, or even a handful, of signs, "an individual would have to do some stupid things to harm himself, and there would be much less of a chance of harming anyone else." They are designed to be routinely handled for maintenance and installation. The signs last 10 to 20 years.

Burnell said the NRC is continuing its review of Wal-Mart's handling of the signs, and that it is too early to say whether any enforcement action will be taken against the company.

Though it's not a concern in this case, the NRC has been ramping up its monitoring and reporting requirements for radioactive materials to keep them out of the hands of terrorists. More potent radioactive isotopes packed with conventional explosives could be used to construct a "dirty bomb."

Radioactive isotopes are used in a wide variety of equipment, from medical instruments to monitors used in the construction industry to measure soil density.

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According to the Nuclear Regulatory Commission, tritium emits low-energy beta radiation that cannot penetrate a sheet of paper or clothing. If inhaled, it leaves the body relatively quickly. It has a short half-life of 12 years.

More than 2 million tritium exit signs are in use in the United States. They do not require electricity or batteries, and are commonly used in areas where it is difficult to install electric signs.

Tritium gas is contained in sealed glass tubes. The insides of the tubes are lined with a phosphor. The beta particles emitted by the tritium bombard the phosphor, causing it to glow.