

Used Fuel Secure at Nuclear Power Plants, Could Not Be Used to Make a 'Dirty Bomb'

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Key Facts

■ Used nuclear fuel is safely and securely stored at nuclear power plant sites, either in steel-lined, concrete vaults filled with water or in steel-and-concrete containers with steel inner canisters.

■ Used nuclear fuel is large, heavy and highly radioactive. This makes it highly impractical material for a "dirty bomb," an explosive device covered with radioactive material.

■ Used nuclear fuel is protected by an extensive security system that includes multiple layers of fortified physical barriers; highly trained, well-armed professionals; and advanced surveillance equipment.

■ Nuclear plant safety and security are based on "defense-in-depth." It is virtually impossible for terrorists to access a plant's used fuel.

Used Fuel Is Stored Securely at Plants

The possibility of utilizing used nuclear fuel for a "dirty bomb" is fraught with practical and logistical obstacles that would render such a scenario essentially impossible. A "dirty bomb" is a bomb made of con-

ventional explosives covered with radioactive material that would be used by terrorists to spread radiation. However, no nuclear reaction occurs. The most significant public health consequences would occur as a result of the explosion—not the radioactivity in the device.

The used fuel at nuclear power plants would be extremely difficult for an outsider to access. Moreover, it also would be extremely difficult to use. Used fuel is stored in steel-lined, concrete vaults filled with water or in robust concrete and steel containers—each weighing more than 100 tons—in a separate, secured area.

The used fuel—consisting of small ceramic pellets—is contained in metal fuel rods. The rods are grouped into bundles called assemblies. The average used fuel assembly is 14 feet long and weighs up to 1,600 pounds.

The used fuel is protected by the same security force and electronic surveillance equipment as the rest of the plant. Handling the material under any circumstances requires special equipment.

The FBI rates security forces and infrastructure at nuclear

plants formidable and considers plants difficult to penetrate.

Nuclear power plants can defend against an assault by a well-trained paramilitary force, armed with automatic weapons and explosives, intent on forcing its way into a plant to commit radiological sabotage, with the aid of an "insider." Companies must demonstrate this ability on a regular basis.

Areas of the plant that house used fuel would withstand the impact of a wide-body commercial aircraft, according to peer-reviewed analyses by the Electric Power Research Institute, a Palo Alto, Calif.-based research organization. Operations personnel are trained in emergency procedures to keep the plant safe from a sabotage attempt.

This fact sheet also is available at www.nei.org.



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