

# Cesium Irradiator Replacement Project

*Learn More About Permanent Risk Reduction  
and Incentives Offered by ORS*



**ORS**

Office of Radiological Security  
Protect · Remove · Reduce

## Cesium Irradiator Replacement Project

The Department of Energy/National Nuclear Security Administration's (DOE/NNSA) Office of Radiological Security (ORS) is working with domestic users of cesium-137 and cobalt-60 based irradiators who are interested in converting to viable non-radioisotopic alternatives. The Cesium Irradiator Replacement Project, offered by ORS, provides qualified facilities that are interested in making the switch with a financial incentive towards the purchase price of a new non-radioisotopic device as well as the removal and disposal of the cesium irradiator. The Project was launched in 2014 and is supported by the United States' goal to eliminate blood irradiation devices that rely on cesium chloride by December 31, 2027.

Qualified participants will receive:

- Removal and disposal of the cesium-137 irradiator, saving the facility approximately \$100–\$200k per irradiator.
- A limited financial payment towards the purchase of the new non-radioisotopic device, up to 50% of the purchase price. The payment will be disbursed when the cesium device has been removed and the non-radioisotopic device has been installed.
- Training, warranty/maintenance agreement costs, and spare part costs are the responsibility of the facility.



## Considerations for Cesium Irradiator Replacement

While radioactive sources play an important role in commercial, medical, and research facilities, the benefits of these sources must be balanced with sufficient security to prevent high-activity radioactive materials from falling into the wrong hands.

Effective security for high-activity radioactive materials, such as cesium-137, requires expertise, security systems, and compliance with additional regulatory requirements.

Thanks to the maturation of technology, viable alternatives to cesium irradiators are now available and have proven to be comparable or even more effective than cesium for both research and blood irradiation in many cases. These alternatives have already been adopted and are in use by many facilities throughout the U.S. Benefits of non-radioisotopic irradiators include:

- Mitigation of security risks, hassles, and costs associated with cesium-137 devices.
- Elimination of the terrorism and liability risks associated with cesium-137 devices.
- Consistent throughput over the lifetime of the device (no source decay).
- Additional capabilities with some alternative technologies.

Facilities using radioisotope-based irradiators should consider several factors when exploring replacement with non-radioisotopic alternatives including:

- Equipment reliability.
- Ease of use.
- Operational protocols.
- Costs including device procurement, warranty and maintenance, infrastructure, and security.
- Potential liability.
- Unique user requirements.

**“By implementing the X-ray irradiator, OneBlood has further enhanced the safety of the blood supply and increased the security of our facilities. At the same time, the X-ray irradiator has enabled us to increase our blood irradiation throughput and has exceeded our expectations for performance and reliability.” – Alicia Belldo Prichard, OneBlood, Inc.**



Replacing your cesium irradiator with a non-radioisotopic alternative may offer your enterprise an opportunity to meet cost and throughput needs while permanently reducing security risks.

## The Office of Radiological Security

ORS works to prevent high-activity radioactive materials from being used in acts of terrorism. ORS uses three strategies to enhance global radiological security:

- Protect radioactive sources used for vital medical, research, and commercial purposes.
- Remove and dispose of disused radioactive sources.
- Reduce the global reliance on high-activity radioactive sources by promoting the adoption and development of non-radioisotopic alternative technologies.

## How Can You Learn More?

For further information on the Cesium Irradiator Replacement Project and to discuss whether and how the Project could work for your enterprise, please contact ORS at [ORSinfo@nnsa.doe.gov](mailto:ORSinfo@nnsa.doe.gov).





**“We recently decided to use X-ray instead of cesium irradiators in our new building. Mount Sinai removed a big risk from our hospital and campuses—we migrated all of our cesium irradiators to alternative technologies.”**

**– Jacob Kamen, PhD,  
Senior Director Radiation Safety, Mount Sinai**

# About ORS

The Office of Radiological Security provides world-class security resources and technologies to businesses that utilize radioactive sources.

For more information, contact:  
[ORSinfo@nnsa.doe.gov](mailto:ORSinfo@nnsa.doe.gov).

