

Cesium Irradiator Replacement Project

*Achieve Permanent Risk Reduction
Using Federal Incentives*



Incentives for Permanent Risk Reduction

While radioactive sources such as cesium-137 play an important role in commercial, medical, and research facilities, they also require compliance with regulatory requirements and sufficient security to prevent these sources from falling into the wrong hands. Thanks to the maturation of technology, viable X-ray alternatives to cesium-137 irradiators that reduce or eliminate the need for these requirements are now available and are in use at nearly two-thirds of facilities across the country.

The Cesium Irradiator Replacement Project (CIRP), offered by the Department of Energy's National Nuclear Security Administration's Office of Radiological Security (ORS), launched in 2014 and provides incentives to facilities interested in replacing cesium-137 irradiators with non-radioisotopic X-ray devices. These incentives include the secure removal and disposal of disused irradiators and payment of 50% towards the purchase price of new devices.

Greater than 65% of United States facilities have already volunteered to remove and replace their cesium irradiators through CIRP, achieving permanent risk reduction both in their facilities and throughout their communities. CIRP directly supports the United States' goal to eliminate blood irradiation devices that rely on cesium-137 by December 31, 2027, through a voluntary program.



Benefits of New X-Ray Irradiators

Replacement technologies supported through CIRP produce equivalent, or better, results than existing cesium irradiators. In addition to proven performance, replacing your cesium-137 device with X-ray can also offer the benefits of:

- Additional research opportunities
- Increased throughput
- Consistent irradiation times
- Partial reimbursement for new X-ray irradiator
- Estimated \$500k in removal cost savings
- Liability risk removed
- Reduced licensing requirements for security
- No background checks = increased researcher access

“The X-Ray irradiator RS3400 is critical to our ability to efficiently provide irradiated red blood cells to our patients who need them. Every unit that is irradiated is documented electronically with key information such as irradiation date, time, and dose. With this information we are able to reprocess our red blood cells to irradiated red blood cells in our laboratory information system. Once units are designated as irradiated in our computer system, these are the only units that can be allocated and issued to patients with a requirement for irradiated units. The computerization of records provides an extra layer of safety towards ensuring only irradiated units are given to those who require them.”

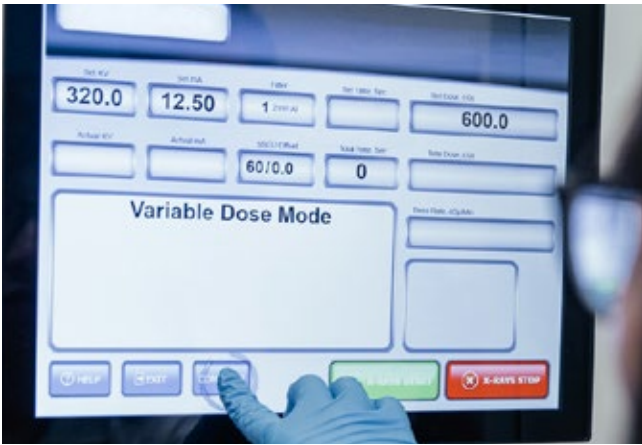
– Jasper Wu, Senior Clinical Lab Scientist-QC/Equipment Specialist at UC San Francisco





“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.



Replacement Considerations

Facilities who want to replace their cesium irradiators with X-ray devices may want to compare and consider:

- Equipment reliability
- Ease of use
- Operational protocols
- Costs including device procurement, warranty and maintenance, infrastructure, end of life management, background checks, and security
- Throughput needs and clinical and research supported applications
- Potential liability for radioactive source accidents or misuse
- Unique user requirements

CIRP Incentives

- Removal and disposal of cesium irradiators, saving the facility at least \$500k per irradiator
- 50% of the purchase price of the new X-ray irradiators with payment disbursed upon removal of the disused device and replacement with the new irradiator
- Training, warranty/maintenance agreement, building modifications, spare part costs, or other complementary incentives may be covered on an as-needed basis
- Information on available X-ray irradiators and assistance with stakeholder discussions

Learn More

To take the next steps towards permanent risk reduction and to learn more about CIRP, contact ORS at ORSinfo@nnsa.doe.gov.



“ORS provided a lot of incentives for us to switch from a cesium irradiator to an X-ray irradiator. Disposal fees and the pickup fees were being covered by ORS and the cost of the X-ray irradiator would be reimbursed a month after the old irradiator was picked up. Indeed, 30 days later we received a check.”

–Marissa Hernandez, Morristown Medical Center

OFFICE OF RADIOLOGICAL SECURITY

