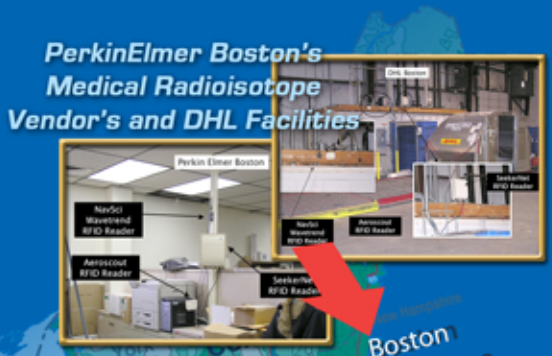
Tracking and Monitoring Sealed Radioactive Sources

During Phase II of the joint DOE-EPA Radiological Source Tracking and Monitoring (RadSTraM) project, the feasibility of using radio-frequency identification (RFID) intelligent systems for tracking sealed radioactive sources was evaluated.

Objectives:

- Validate the performance of RFID intelligent systems to monitor express air shipments of medical radioisotopes in the nationwide supply chain,
- Quantify the reliability of these tracking systems with regard to probability of tag detection and operational reliability,
- Determine whether the implementation of these systems improves manpower effectiveness, and
- Demonstrate that RFID tracking and monitoring of radioactive materials is ready for large–scale deployment at the National level.



Results

The presence of more than one RFID system in a shipment did not appear to have an effect on any of the three systems tested. However, no tests of significance could be performed because group sample sizes did not satisfy the standard binomial test-of-significance between independent samples. Preliminary analysis of the data using pair-wise comparison (in process) is expected to show some (possibly significant) differences due to packaging and the effects of dry ice on the tags. Phase II of the RadSTraM project verified that RFID tagging can be applied to the tracking and monitoring of medical radioisotope air express shipments. This study demonstrated that active RFID tagging systems can be feasibly integrated and scaled into the nation-wide supply chain to track and monitor medical radioisotopes.

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