

Abstract

The Reflecto Active™ Seal System: A Networked Architecture for Unattended Monitoring of Special Nuclear Material with Centralized Reporting

The Reflecto Active™ Seal System is a collection of hardware and software that provides real time tamper detection for a large number of containers. The system consists of an active loop of fiber-optic seals, a newly designed high resolution optical time domain reflectometer (OTDR) that includes event detection and location electronics, and network supportable architecture. The seals are easy to open and close, and all seals remain under surveillance when any seal opening occurs. These traits make RAS an ideal solution for the unattended monitoring of high valued assets in both dynamic and static storage environments.

Recent improvements in hardware have invoked a system design change which will allow multiple RAS systems spanning rooms, buildings, or sites to be network controlled and monitored from a central location. This design change also provides support for the integration of additional sensors and complimentary devices (such as cameras). Integration of such devices will help provide true continuity of knowledge of system events and more operational flexibility for different safeguards and security scenarios.

This paper will discuss the system design changes of the RAS hardware and operational benefits of deploying this type of technology for unattended monitoring of nuclear materials stored in static and dynamic environments.