

## Enhanced Nuclear Materials Control and Accountability by Imaging

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The Nuclear Materials Identification System (NMIS) has recently incorporated imaging capability. The fast-time correlation processor when coupled with a time-tagged (via alpha detection) neutron emission from a DT generator and a set of  $1 \times 1 \times 6$  in. thick plastic scintillators now has a demonstrated imaging capability for a wide variety of items. NMIS imaging measurements utilize the transmission of 14-MeV neutrons to reconstruct an image of the object under interrogation. This type of imaging has a variety of uses such as verification of the configuration of nuclear weapons shipped or received, warhead authentication behind an information barrier, traceability of weapons components/parts both fissile and non-fissile in dismantlement, advanced template matching, and determination of unknown configurations of fissile materials to determine appropriate standards for enhanced nuclear materials control and accountability methods.