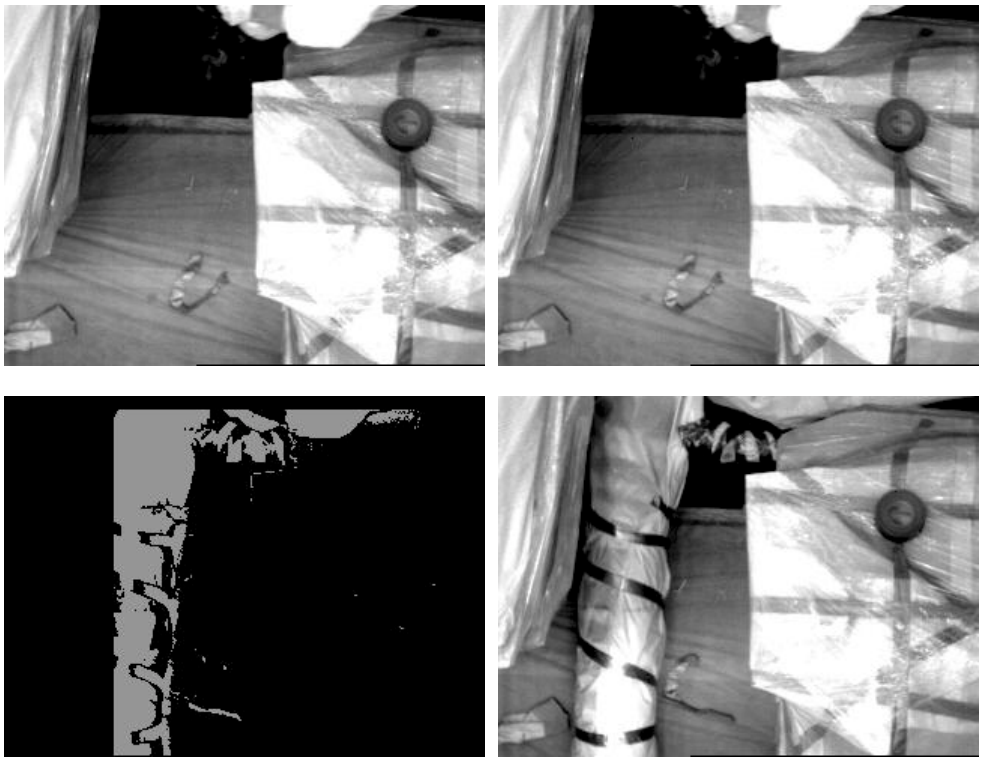
Large-Scale Demonstration & Deployment D&D

Los Alamos
NATIONAL LABORATORY
Environmental Science and Waste Technology

TECHNICAL DEMONSTRATION SUMMARY SHEET; NTvision Video Recording of Waste Crate Loading

Images of items being placed in waste crates



Summary
The Integrating Contractor Team of the Los Alamos National Laboratory (LANL) Large Scale Demonstration and Deployment Project (LSDDP) demonstrated the NTvision video recording system as a tool for documenting the loading of waste crates for disposal at the LANL solid waste disposal area. NTvision provided visual documentation of the crate contents, and on review identified two prohibited items. The items were subsequently removed and the waste package was disposed of.

The Need
Los Alamos National Laboratory (LANL) is currently retrieving crated oversized metal objects for processing and repackaging to meet the requirements for disposal at the LANL Solid Waste Disposal Area or for shipment to the Waste Isolation Pilot Plant for disposal as transuranic waste. Crates contain items such as gloveboxes, filters, and tanks, which were packed in fiberglass-reinforced plywood crates in the early 1970s. The documentation requirements for the resulting

LLW and TRU waste packages involve substantial records management. This technology was demonstrated to evaluate its potential for reducing the manual record keeping requirements and improve data validation confidence.

The Technology

The technology being demonstrated, NTvision, is a video recording system developed for security operations, but applicable to recording of the contents of waste packages. One NTvision feature that is particularly useful in this application is the "on-for-action" mode wherein the system stops recording when there is no movement in the frame. A second feature is the ability to electronically subtract the "before" and "after" images to show the individual items being added to a waste package. The result is a relatively small electronic file that is readily retrieved and is non-subjective documentation of the waste package contents. This demonstration also supports a potential application of the technology to record keeping of the contents of TRU waste packages destined for WIPP. To the extent possible, the parallel manual record keeping activities will facilitate one-to-one comparison to the baseline.

The Demonstration

As a part of the Los Alamos Decontamination and Volume Reduction System processing of golveboxes and other large metal objects, two large crates were opened and repackaged in September/October 2000. During retrieval, these particular crates were found damaged, and repackaging was undertaken as a precautionary action. The repackaging was done in a PermaCon facility in Dome 231 of the Los Alamos Solid Waste Disposal Area. The objective of the uncrating was removal of the damaged crating and plastic sheeting from around the gloveboxes and moving the gloveboxes to cargo containers for future processing. The crating and packaging was to be packaged in LLW disposal boxes for on-site disposal. The NTvision system was positioned to monitor/record the loading of the LLW crates, which accepted the damaged crating material

Space limitations precluded NTvision recording of crating activities during the first crate opening. However, the packaging of the crating materials for the second uncrating activity were recorded with excellent detail. On completion of the demonstration the video record was reviewed and two prohibited items were seen being placed in the crates. Flashlight batteries and sealant tubes were retrieved from the waste crate prior to closing with excellent confidence in the data validity.

Future Applicability

The technology shows excellent applicability in enhancement of the confidence of waste package data. It can be used to document the loading of LLW and TRU waste crates. Similar systems have been approved for TRU packaging certification. The particular advantages of NTvision include the minimized digital file size based on the "on for action" mode of operation, and the ability to isolate items that have been added to a waste package.

Benefits

- The electronic record vastly improves data validation confidence in certification of waste package contents.
- The digital record is amenable to common records management packages.
- The "on for action" mode minimizes the size of the video files.
- The electronic subtraction mode facilitates viewing individual items added to the crates.
- Properly configured, the image can be monitored "real time" at a remote location.

Contact Persons

Steve Bossart; US DOE, NETL (304) 285-4643
Ellen Stallings; LANL(505) 667-2236
John Loughead; LANL (505) 667-2157
John McFee; IT Corp. (303) 793-5231
Len Burczyk; LANL (505-665-4273.
Michael Romero; IT Corp, (505) 665-0149
Scott Garner; LANL