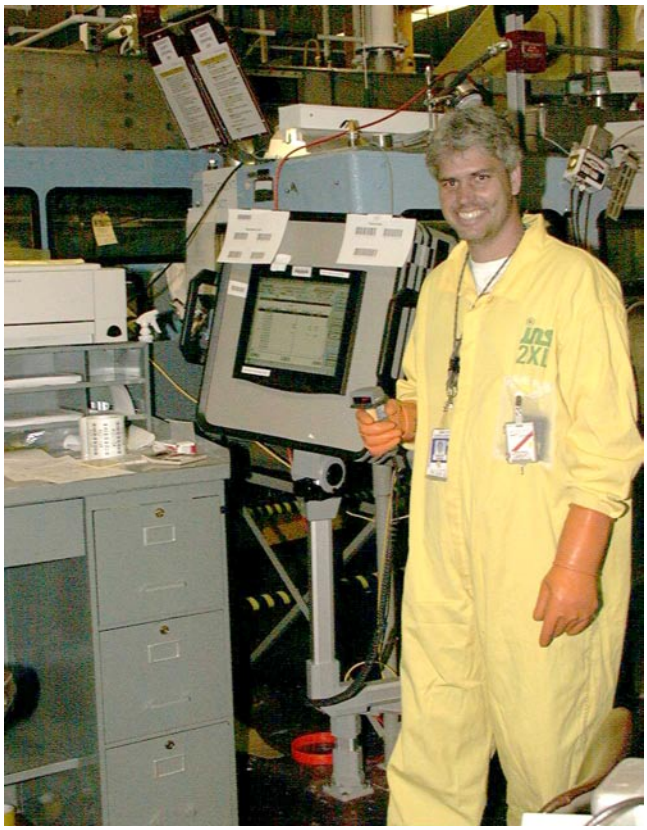
TECHNOLOGY @ ROCKY FLATS

Demonstration & Deployment Summary

Waste Tracker system improves TRU waste management at Rocky Flats

Overview

The Waste Tracker system is a computerized tool to support a part of the Radioactive Waste Packaging activities during Decontamination and Demolition operations inside the major plutonium and uranium facilities at the Rocky Flats Environmental Technology Site (RFETS).



The Waste Tracker barcode scanner and touchscreen system is shown during plutonium ash residue repackaging activities in Rocky Flats Building 707.

Developed with the assistance of the DOE Office of Science & Technology (EM-50), its original primary function was to capture data elements for the Residues and Transuranic Waste Project and to support data quality for shipping waste to the Waste Isolation Pilot Plant (WIPP). The application captured and validated data while waste containers within the Radiation/Contamination Areas were being dumped into gloveboxes, size reduced, visually verified and approved, repackaged and prepared for storage and/or shipping. Currently the application's primary function serves as a data-repository to support TRU Waste Project Quality Assurance and WIPP Shipping.

To minimize manual data-entry during data acquisition, the system utilizes bar-coding, directly interfaced scales and balances and computer touch screens. As a given step in the waste repackaging process is completed, the data package is systematically recorded, reviewed and forwarded to the next step/person in the process. As these personnel, such as the waste packaging team, project inspectors and QA reviewers enter and review data, their signature is electronically authenticated and captured and the data package is then forwarded on to the next appropriate person(s) in the project.

Benefits

The application allowed for improved operator workflow and reduced time and effort in and around the radioactive waste packages while allowing the application to perform many "real-time" data quality and waste packaging validation checks for the operator. This enhanced the residues repackaging team operational throughput while increasing worker ALARA efforts.

The application also improved data quality and accuracy by utilizing data list boxes choices and barcode scanning. Many data values were bar-coded and put up on the wall to eliminate data entry errors while speeding up data entry. To further improve data quality, various data validation checks were performed against other Rocky Flats databases such as WSRIC, PADT, TSR, WEMS, ROCKMAS and Instrument Calibration data. These types of features prevented untrained operators from using the system, cross checking active current operational procedures with the Foremen and eliminated the use of out-of-calibration instruments.

The greatest realized benefit from the system was the reduction in manual paperwork. The application al-

lowed for the electronic preparation of, review of and signatures of documents and reports. These documents were then automatically forwarded on the appropriate person and/or project that required these documents. This allowed for much greater accuracy and timeliness of data entered into the WEMS system.

Currently the application is proving very beneficial in the final certification and auditing of waste packages and their associated data packages prior to shipment to WIPP. Recently the system has provided several audit trail data-sets and the regeneration of several reports and paperwork that has been "lost" over time.

Additional Benefits

- Improved legibility of paperwork generated while operators are sometimes dressed in PPE requiring at least two pairs of thick gloves and full-face respirators. Including the use of touch screens in the MAA/CA/LA to alleviate difficulty of entering data while wearing PPE.
- Reduced time/effort to complete paperwork in contamination/radiation areas, reducing worker exposure. Estimating 4.5 hours per drum of "paperwork" time eliminated for one project alone. Approximately 1200 drums went through the system during its life span.
- Capability to run countless reports against data.
- Quick and accurate data-entry with bar code scanners, pick-lists and automatic interfaces into digital equipment (balances).
- Built-in messages and warnings to operators if packaging activity is out of tolerance.
- Built-in messages and warnings to operators if calibrated tools are of out of tolerance.
- Built-in messages and warnings to operators if they are not operating under the correct process procedure version (including procedure revision and effective date). This function stopped the operators on several occasions from proceeding with their work when they were unaware of procedural changes and revisions.
- Calculations performed on Software Engineering Institute Level 3 QA-rated and WIPP audited software.
- Capability to electronically transfer and/or verify data between different waste systems and databases.
- Use of electronic documents and email-routed documents.
- Easier and quicker method for data package verification and QA reviews.
- Auditable trail of waste packaging activities including tools used during waste packaging.
- Verification of the operators/foremen meeting training requirements. System has discovered and stopped several operators that were not trained/qualified on procedure.
- Reduced number of waste package repacks due to improved Plutonium to Net Weight batching features.
- One centralized/shared database and application that can encompass many different functions for all site users.
- Cost effective application built and maintained in-house utilizing site data back-ups and data-protection and security.
- Ability to reproduce paperwork that had been "lost" or contaminated. This occurred countless numbers of times.
- Same look and feel as other RFETS Oracle® systems (WEMS, TANK, PATS, etc.)

For more information about Technology at Rocky Flats, contact David Maloney, Kaiser-Hill Company, (303) 966-7566, or Gary Huffman, DOE, Rocky Flats Field Office, (303) 966-7490

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