PROJECT: Waste and D&D Engineering and Technology Development: *D&D Decision Model for Selection of Fixatives, Strippable Coatings, and Decontamination Gels*

CLIENT: US Department of Energy EM
PRINCIPAL INVESTIGATOR: Dr. Leonel Lagos
SITE: Savannah River Site

Description:

This task includes the development of a decision model for the selection of fixatives, strippable coatings, and decontamination gels for D&D activities. The research is being conducted at FIU-ARC in collaboration with SRS and SRNL. This work is also relevant to D&D activities being carried out at other DOE sites as well as D&D activities world-wide.

The overall objective of this project is to provide support to SRS in their efforts to D&D the SRS 235-F facility. The objectives for this project task include:

- Compile a comprehensive list of fixatives and other contamination control products capable of being effective under the conditions present at SRS (Pu238 contamination, size limitations, type of surfaces, etc.)
- Develop an initial Decision Model as a proof-of-concept to demonstrate that such a model is capable of filtering and sorting the available products according to the criteria entered.
- Develop a web-based Decision Model and deploy on the D&D KM-IT platform. The initial decision model is being revised to improve and simplify the model and changing the code to work in a web-based application environment.
- Develop and deploy the Decision Model as a mobile application capable of being accessed from a mobile device or tablet for conditions with and without internet connection.

Benefits:

- Cuts down research time to identify the best product to use for site-specific conditions.

- Provides an instant overview of the commercially available products filtered and sorted for the criteria entered.
- Includes concise information on over 40 commercially available products.
- Can be expanded to include more criteria.

Accomplishments:

- FIU has compiled a product list of over 40 commercially available contamination control products. The original list was from the former DOE Hanford ALARA Center; this list was reviewed to eliminate discontinued or not commercially available products. New products were added which fit the criteria and manufacturers were contacted to update the product list information.
- An initial Decision Model was constructed in MATLAB which allowed the user to input the criteria for four categories: type of radiation, surface type, application method, and product type (strippable, fixative, or decon gel). Once the criteria selections were made, the code was programmed to search the product list and return products which fit the criteria specified.
- The structure for the web-based application has been created and the user inter-face is being developed in order to deploy the Decision Model on D&D KM-IT.
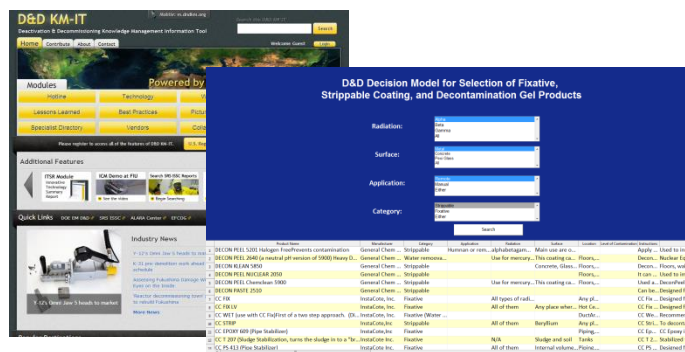
Preliminary decision model on MatLab and D&D KM-IT platform for web-based decision model.

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