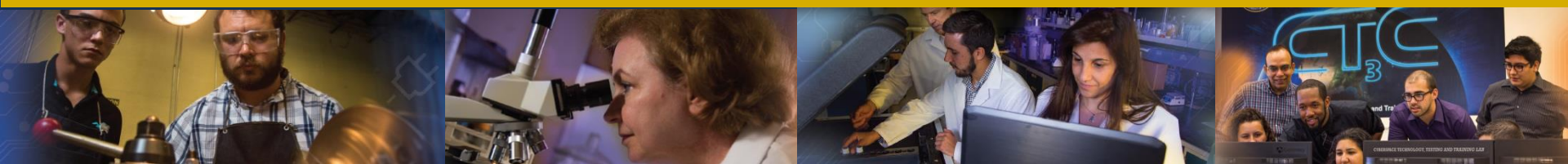
DOE-EM Cooperative Agreement
FIU Year 5 Research Review

Presented: March 31 - April 3, 2015
to the U.S. Department of Energy
Dr. Leonel Lagos, PhD, PMP® (Principal Investigator)

Florida International University



FIU-DOE Research Review

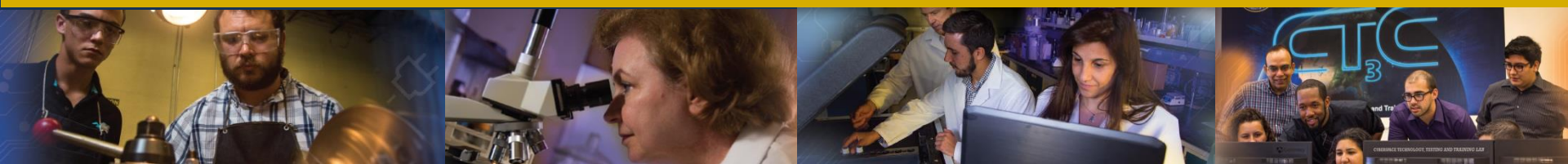
FIU Applied Research Center

Tues, March 31	Wed, April 1	Thurs, April 2	Fri, April 3
10:00 AM - 12:00 PM *Presentation- Env. Remediation Technologies (FIU Project 3)* Discussion of research area in support of EM **1:00 - 3:00 PM** *Presentation- Env. Remediation Technologies (FIU Project 2)* Discussion of research area in support of EM	**10:00 AM - 12:00PM** *Presentation- Workforce Development and Training (FIU Project 5)* Discussion of research area in support of EM **1:00 - 3:00 PM** *Presentation- D&D and Env. Mngt IT Research (FIU Project 4)* Discussion of research area in support of EM	**1:00 - 3:00 PM** *Presentation- High Level Waste/Waste Processing Research (FIU Project 1)* Discussion of research area in support of EM	**10:00 AM - 12:00 PM** *Wrap-up - Discussion of DOE-FIU Cooperative Agreement*

Project 4: Waste and D&D Engineering and Technology Development

Leonel Lagos, PhD, PMP®
Director of Research, Applied Research Center

Florida International University



Project Staff and Students

FIU Applied Research Center

Project Manager:

Leonel Lagos, PhD, PMP®

Faculty/Staff:

Peggy Shoffner, Himanshu Upadhyay, Walter Quintero, Clint Miller, Joe Sinicrope, Amer Awwad, Jose Rivera

DOE Fellows:

Meilyn Planas, Jesse Viera, Janesler Gonzalez, Andrew De La Rosa, Steve Noel, Jorge Deshon

FIU Graduate/Undergraduate Students:

Santosh Joshi, Kavitha Megalageri, Kirby Brennan, Daniela Campos

Project Clients and Collaborators

FIU Applied Research Center

DOE EM:

Andrew Szilagyi, John De Gregory, George Cava, Rosa Elmetti, Ana Han, Kelly Knopf, Jonathan Kang

INL:

Rick Demmer, Steve Reese

SRNL:

Michael Serrato

UK:

NNL/NDA: Anthony Banford and John Mathieson

SRNL SAVANNAH RIVER NATIONAL LABORATORY

INL Idaho National Laboratory Operated by Battelle Energy Alliance

Project Description

This research project focuses on delivering solutions under the deactivation and decommissioning (D&D) and waste areas as well as the management of D&D knowledge (storage, preservation and dissemination) for environmental management.

This work supports DOE HQ (EM-13, EM-12, EM30, EM 2.1) and is also relevant to D&D and facility engineering activities being carried out at other DOE sites such as Oak Ridge, Savannah River, Hanford, Idaho and Portsmouth as well as internationally.

Project Task Descriptions

- D&D Support to DOE EM for Technology Innovation, Development, Evaluation and Deployment
  - Provides direct support to assist DOE EM in meeting the D&D needs and technical challenges around the DOE complex. Identifying and evaluating innovative technologies in support of SRS 235-F project.
- Waste Information Management System (WIMS)
  - Receives, integrates and organizes the DOE waste forecast data from across the DOE complex on an annual basis and to automatically generate waste forecast data tables, disposition maps, GIS maps, and transportation details.
- D&D Knowledge Management Information Tool (KM-IT)
  - A web-based community-driven system developed to maintain and preserve the D&D knowledge base and tailored to serve the technical issues faced by the D&D workforce across the DOE Complex.
- Global Knowledge Sharing & Collaboration for EM
  - A study of international knowledge sharing protocols and development of a pilot system for knowledge sharing and collaboration with the international community.

DOE-FIU Cooperative Agreement

Project 4 Accomplishments

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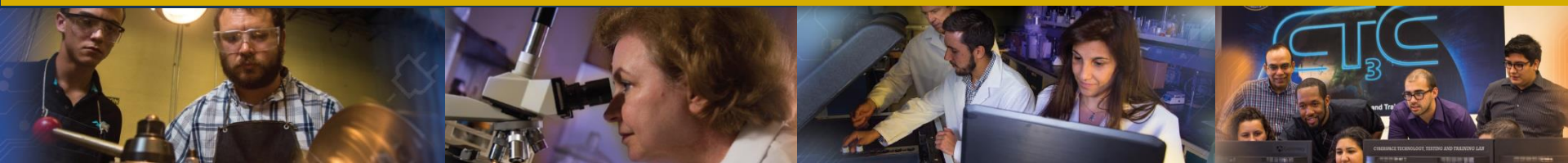
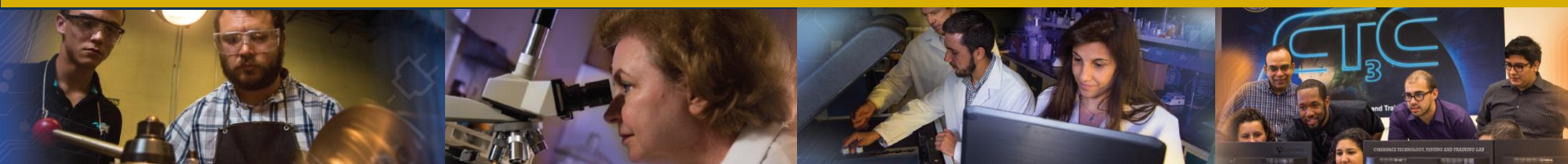


D&D Decision Model for the Selection of Fixatives, Strippable Coatings, and Decontamination Gels

Dr. Leonel Lagos

Florida International University



Project 4 - Decision Model - Accomplishments

FIU Applied Research Center

Decision Model for the Selection of Fixatives, Strippable Coatings, and Decontamination Gels

- FIU is working with the SRS to investigate the decontamination agents and materials available on the market for radiological surface contamination.
- Results will help the SRS project team develop their decontamination concepts for the 235-F facility and define the current and outyear's technical activities.
- A decision model is being created to better guide the product end users in the selection of the appropriate products depending on site conditions and requirements.

Project 4 - Decision Model - Accomplishments

FIU Applied Research Center

- Created a Excel data sheet of commercially available fixatives, strippable coatings, and decontamination gels.
- Based on Hanford's former ALARA Center's fixative list.
- Updated with newer products and removal of obsolete products.
- Over 40 products currently identified and included.
- Continuously updated and available in Document Library of D&D KM-IT.

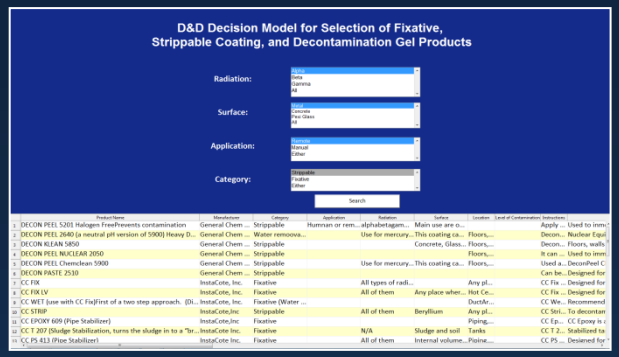
Product Name	Manufacturer	Strippable	Application	Use
DECON PEEL 5201 Halogen Free Prevents contamination	General Chem Corp.	Yes	Apply the product as received using an airless spray to proper thickness (recommended a minimun of 10 mils) may also be applied with a roller or brush. Aprox. 1 to 3 hour of drying time depending on the films thickness. The coating encompasses contaminants into the film mass. For airless equipment recommended to use a .015 or .017 nozzle at 1200-1500 psi. It is removed by peeling. More than one appliacation is recommended.	**Used to inmobilize radioactive contamination, minimize exposure and facilitate consequent decontamination.**
DECON PEEL 2640 Heavy Duty Decontamination pH Neutral Chemical, nuclear Equipment	General Chem Corp.	Yes	DeconPeel_2640 is normally used as received. Can be applied by an airless sprayer, a roller or a brush. Aprox. 1 to 3 hours drying time depending on film thickness.	**Nuclear Equipment (Works best on Metals)**
DECON KLEAN 5850	General Chem Corp.	Rinse	DeconKlean, liquid cleaner, can be used as received (highly concentrated) or dilute in water, depending upon the severity of the soils to be removed. When used with mechanical agitation as in a floor scrubber, DeconKlean can be diluted up to 5% (1:20).	**Floors, walls and equipment (including tools). Clean of loose particles.**
DECON PEEL NUCLEAR 2050	General Chem Corp.	Yes	It can be applied by spray, roll or brush. The sprayed coating dries, depending on the film thickness, in 30 minutes to 4 hours.	**Used to immobilize dispersible radioactive contamination deposited on buildings and equipment.**
DECON PEEL Chemclean 5900	General Chem Corp.	Yes	Used as recevied. Can be applied by spray, roll or brush. May be diluted a a rate of 1 to 4 ounces of water per gallon or as needed for proper application. Depending on the film thickness drying times may vary from 30 min to 4 hours.	**DeconPeel Chemclean is a non-hazardous, non-toxic solution formulated for removing and preventing the spread of radioactive contamination.**

Project 4 - Decision Model - Accomplishments

FIU Applied Research Center

Strippable	Fixative	Gel
DECON PEEL 5201 Halogen Free	CC FIX	DECON GEL 1101
DECON PEEL 2640	CC FIX LV	DECON GEL 1102
DECON KLEAN 5850	CC WET	DECON GEL 1108
DECON PEEL NUCLEAR 2050	CC EPOXY 609	DECON GEL 1128 Spary
DECON PEEL Chemclean 5900	CC T 207	DECON GEL 1120 Spray
DECON PASTE 2510	CC PS 413	DECON GEL 1121 Spray
CC STRIP	POLYMERIC BARRIER SYSTEM	DECON GEL PRO (new)
Stripcoat TLC Free	RUST DOCTOR	ARGONNE SUPERGEL
ALARA 1146	Polyshield SS-100	
ISOLOCK-300	Polyshield HT	
RADBLOCK	Polyurea Special Protective Coating (Envirolastic AR 425)	
ORION	ArmorSeal 650 SL N (Nuclear)	
	MACROPROXY 646 N (Nuclear)	
	Dura Seal 400	
	Soil Sement	
	SAFEGARD CC	
	QUICK DECON	
	ISOFIX	
	Waste Lock 770	
	ISOFIX	

Commercially available products



Decision model created in MatLab to filter by selected criteria

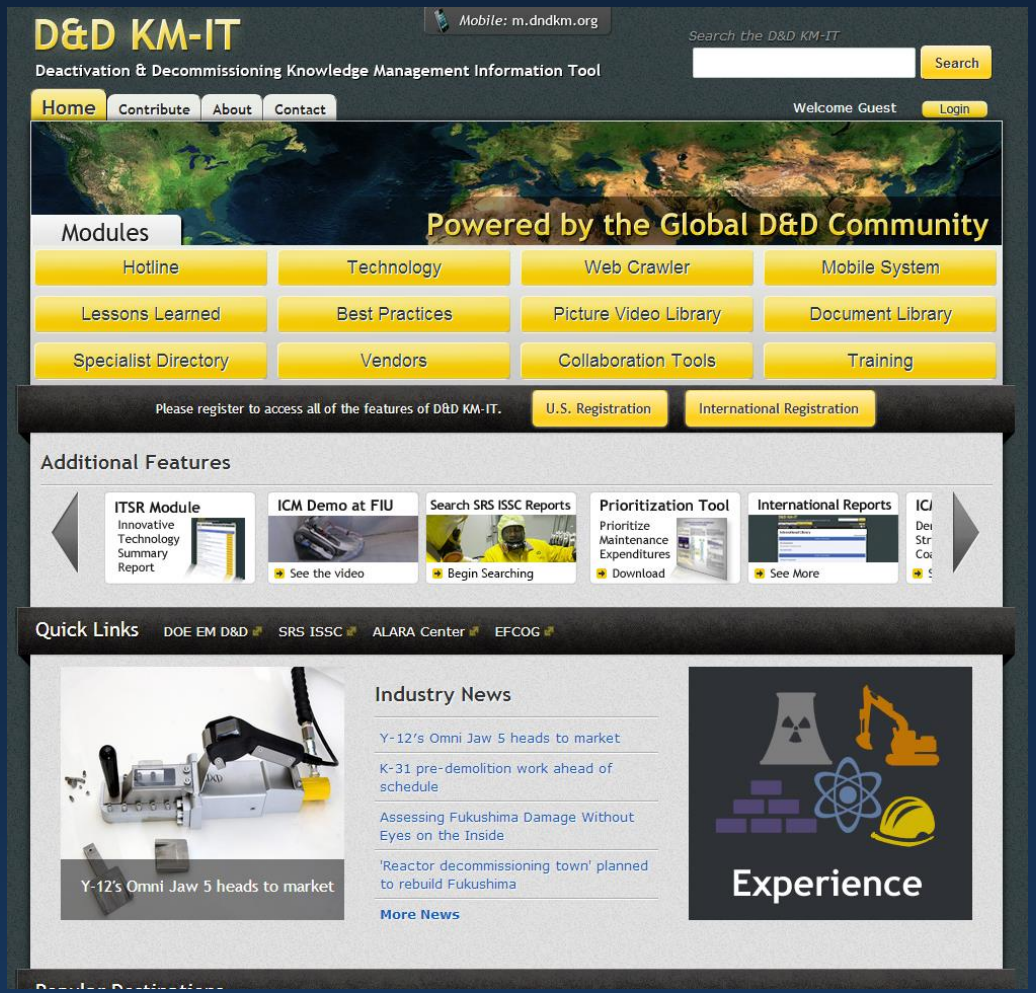
Display of products best matched to criteria

Initial Decision Model

Project 4 - Decision Model - Accomplishments

FIU Applied Research Center

Decision Model will be deployed on the D&D KM-IT platform as **web** and **mobile application** for selection of fixatives, strippable coatings, and decontamination gel products.



Project 4 – Decision Model – Future Work

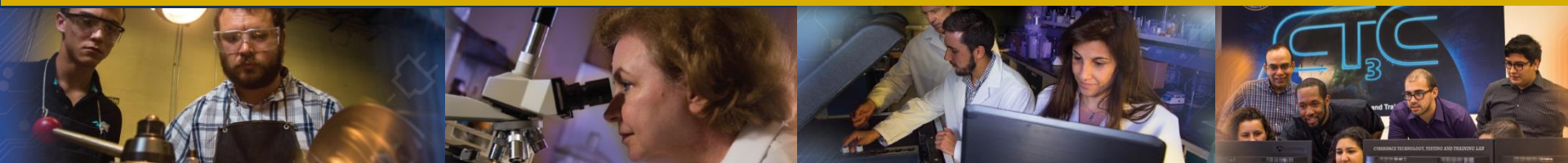
As part of the renewal work scope for the new Cooperative Agreement (2015-2020) FIU will:

- Refine the decision support model for the selection of fixatives, strippable coatings, and decontamination gel products specific to the site applications.
- Design and develop the mobile application for the selection of fixatives in an online and offline environment.

D&D Tasks

Mr. Joseph Sinicrope

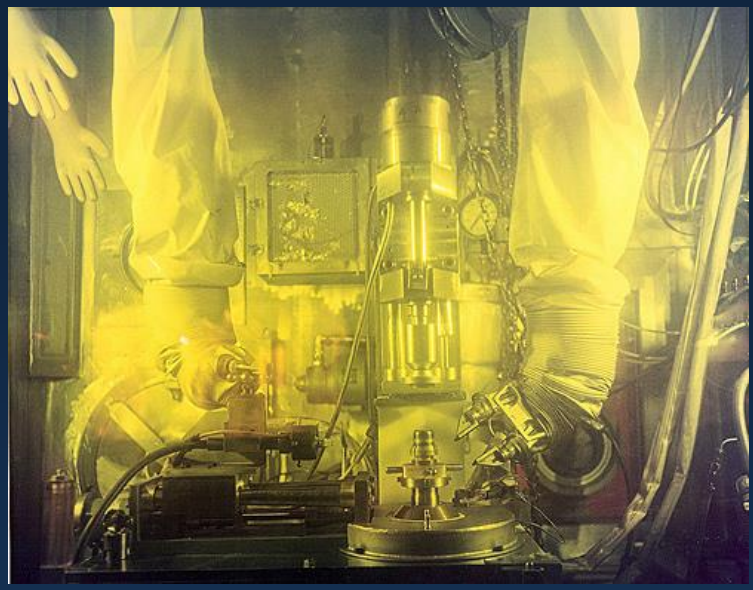
Florida International University



Project 4 - Advanced Fogging Technology - Accomplishments

FIU Applied Research Center

Problem Statement: Requirement for an advanced technology system that better addresses the challenges associated with potential airborne contaminants in a radioactive environment



- Current methods are labor intensive, costly, and sometimes ineffective
- Need to focus on the system as a whole - fogging fixative (this effort) and remote delivery mechanisms

Project 4 - Advanced Fogging Technology - Accomplishments

FIU Applied Research Center

Potential Solution: FX2 Fogging Agent

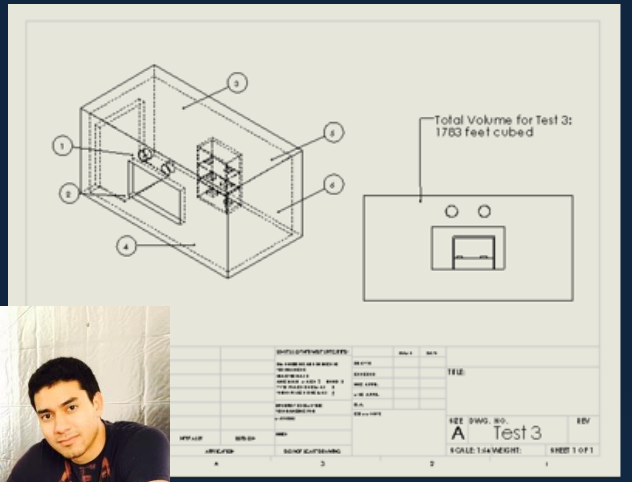
- INL proprietary mixture of water, latex paint, glycerin, and sodium lauryl sulfate
- Development began in 2006 with INL and DOE SBIR grant resulting in FX1 composition
- Subsequent research produced FX2, with initial test results by INL demonstrating superior results at reducing airborne contamination via enhanced penetration, fixing, and adhesion of particulates compared to alternatives on the market

Project 4 - Advanced Fogging Technology - Accomplishments

FIU Applied Research Center

FIU Testing & Evaluation of FX2 Fixative

FX2 Test Plan execution: March 30 to April 3 at FIU ARC Hot Cell Mockup Facility in Miami



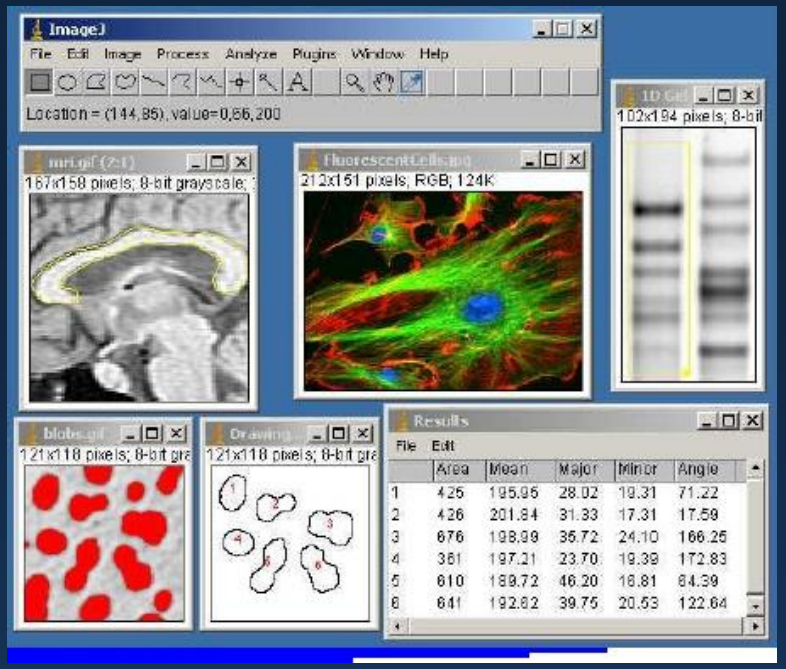
- Expanded test objectives include:
  - Shielding properties against Alpha emitters
  - Resiliency and characterization testing in accordance with various ASTM / NFPA standards
    - ASTM E84 (Burn Rate)
    - ASTM D3065 (Flammability)
    - ASTM D1331 (Surface Tension)
  - Adhesiveness and coverage on various surfaces in line-of-sight / non line-of-sight configurations at varying dimensions

Project 4 - Advanced Fogging Technology - Accomplishments

FIU Applied Research Center

Testing Innovations

- Unique application of Open Source software to evaluate surface coverage (ImageJ)



Project 4 - Advanced Fogging Technology - Future Work

FIU Applied Research Center

As part of the renewal work scope for the new Cooperative Agreement (2015-2020) FIU will:

- Research feasibility for development of a robotic fogger with path planning, obstacle detection / avoidance to enhance delivery and application
- Continue collaboration with INL to complete identification, selection, testing, and evaluation of fogging products

Project 4 – Incombustible Fixatives - Accomplishments

FIU Applied Research Center

- Concept: Fixative resiliency and performance can be enhanced via combining / layering
- Decon solutions and fixative coating materials to be tested:
  - DECONGEL 1101 -DECONGEL 1120
  - DECONGEL 1121 -DECONGEL 1108
  - DECONGEL 1128 -Dicalcium Silicate
- Test Plan development underway
  - Phase I: Baselining above materials
  - Development of testing protocols and performance metrics

Project 4 – Incombustible Fixatives - Future Work

FIU Applied Research Center

As part of the renewal work scope for the new Cooperative Agreement (2015-2020) FIU will:

- Execute Phase I Test Plan to determine baseline incombustible characteristics of selected products
  - DECONGEL 1101 -DECONGEL 1120
  - DECONGEL 1121 -DECONGEL 1108
  - DECONGEL 1128 -Dicalcium Silicate
- Develop and execute Phase II Test Plan for combinations of products (e.g., layering or mixing) to improve incombustible characteristics

Project 4 – Organic Semiconductor Thin Films – Accomplishments

- Concept paper being drafted to support Test Plan development
- New testing protocols and performance measures will be developed to evaluate materials

Project 4 – Thin Films – Future Work

FIU Applied Research Center

As part of the renewal work scope for the new Cooperative Agreement (2015-2020) FIU will:

- Complete the applied research on dual purpose organic semiconductor thin films for polymer interface and electrostatic applications, which has application to SRS 235-F and the DOE complex for radioactive waste handling and packaging.

Project 4 – Other D&D Support – Future Work

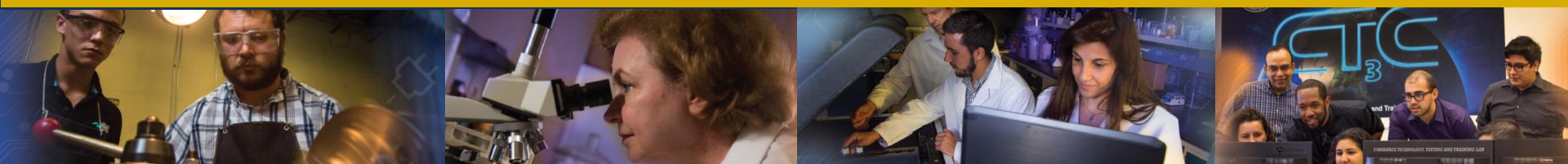
As part of the renewal work scope for the new Cooperative Agreement (2015-2020) FIU will:

- Assist DOE EM-13 in meeting the D&D needs and technical challenges around the DOE complex.
- Perform applied research for the identification or development of a remote technology for implementation at SRS 235-F Facility to meet the site's need for a remote system that can enter highly contaminated areas.
- Engage with the D&D Community of Practice.

Waste Information Management System (WIMS)

Dr. Himanshu Upadhyay

Florida International University

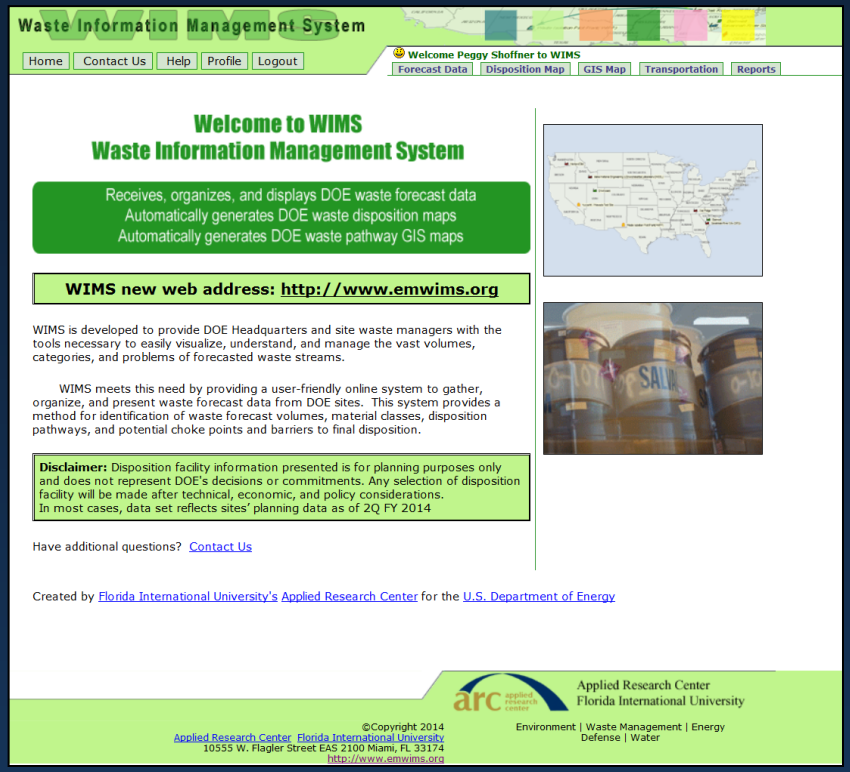


Project 4 – WIMS - Accomplishments

Waste Information Management System

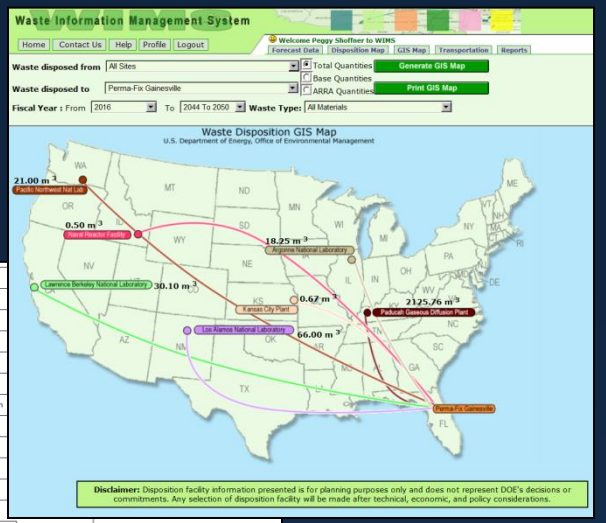
- WIMS is successfully deployed and can be accessed from the web address http://www.emwims.org.

- Provides DOE and site waste managers with an easy-to-use tool to visualize and understand the vast volumes of forecasted waste streams in the DOE system and to offer a single source for this information.



Project 4 - WIMS - Accomplishments

- Completed integration of 2014 waste forecast and transportation data into WIMS.
- New 2015 dataset expected in April 2015, will be integrated and deployed on WIMS.



Project 4 - WIMS - Accomplishments

FIU Applied Research Center

- Conducted administration and management of the WIMS database and web server.
- Conducted user support on a continual basis.

- Presented WIMS at WM15 Symposia.

Project 4 - WIMS - Future Work

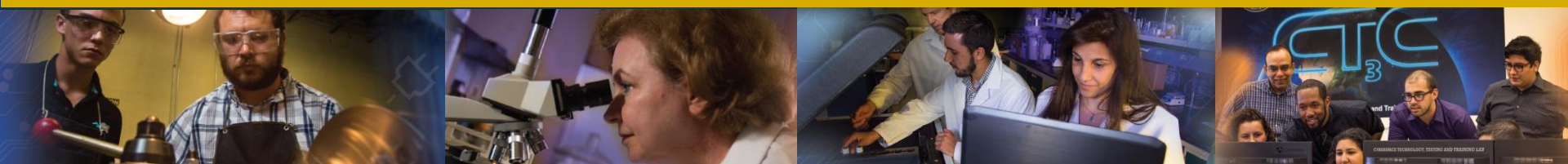
As part of the renewal work scope for the new Cooperative Agreement (2015-2020) FIU will:

- Maintain WIMS via database management, application maintenance, and performance tuning.
- Integrate annual forecast data update.

Deactivation and Decommissioning Knowledge Management Information Tool (D&D KM-IT)

Dr. Himanshu Upadhyay

Florida International University



Project 4 – D&D KM-IT

FIU Applied Research Center

Deactivation and Decommissioning Knowledge Management Information Tool

- D&D KM-IT is successfully deployed and can be accessed from the web address http://www.dndkm.org.

- A web-based knowledge management information tool custom-built for the D&D user community by FIU-ARC in collaboration with DOE, EFCOG, and the former DOE ALARA Centers.

Project 4 – D&D KM-IT – Objectives

FIU Applied Research Center

To prevent the loss of D&D knowledge and expertise that has been gained over the years by employees and contractors of DOE

To collect, consolidate, and share this valuable information in a universally available and easily usable system

To provide single-point access into the collective knowledge-base of the D&D community within and outside of the U.S. Department of Energy

FIU Applied Research Center

D&D KM-IT MODULES

Project 4 – D&D KM-IT – Web Modules

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- D&D Hotline
- Technology Module
- Vendor Module
- Collaboration tools
- Mobile applications
- Lessons Learned
- Documents
- Pictures/videos
- Search tools
- Training
- Specialists
- Best Practices

Project 4 – D&D KM-IT – Mobile Applications

FIU Applied Research Center

The D&D KM-IT mobile web application is now available on the iPhone, iPad, Blackberry, Android, or Windows smart devices to access the following modules:

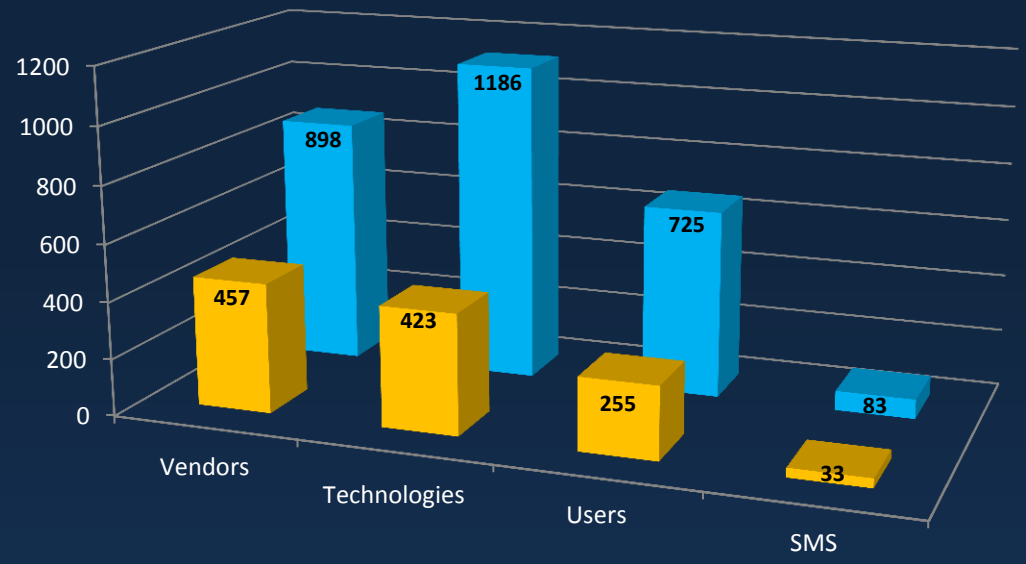
- Vendor Module
- Technology Module
- Specialist Directory
- Picture Library
- Hotline
- Lessons Learned

M.DNDKM.ORG

Project 4 – D&D KM-IT – Accomplishments – Content Management

FIU Applied Research Center

- 725 registered users
- 83 subject matter specialists
- 898 D&D vendors
- 1186 D&D technologies
- 195 questions and solutions in Hotline module
- 169 ALARA Center reports archived
- 231 Innovative Technology Summary Reports archived



Growth from March 2012 to March 2015

2015 Q1 DND KM-IT WEB ANALYTIC DATA (dndkm.org)

TOTAL PAGEVIEWS

25,075

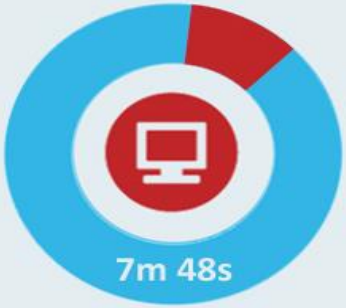
UNIQUE USER VISITS
3,791

NEW
67.7%

RETURNING
32.3%

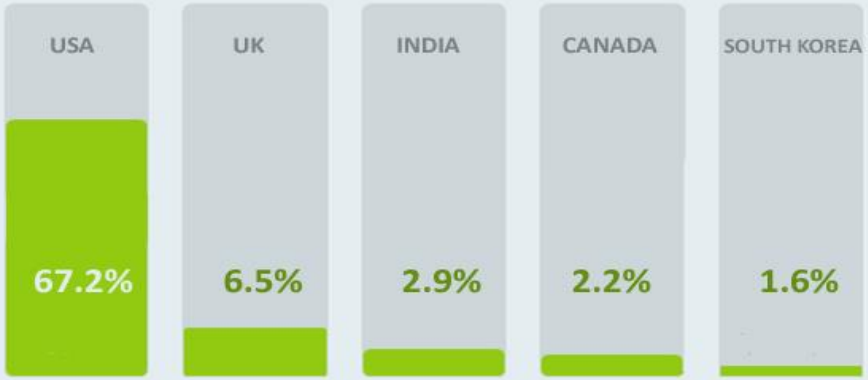
FIU
12.6%

AVG. TIME ON SITE

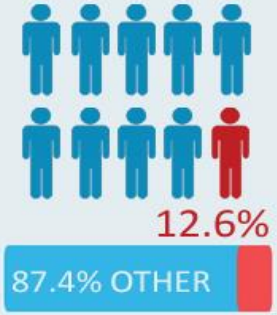


TRAFFIC TYPE

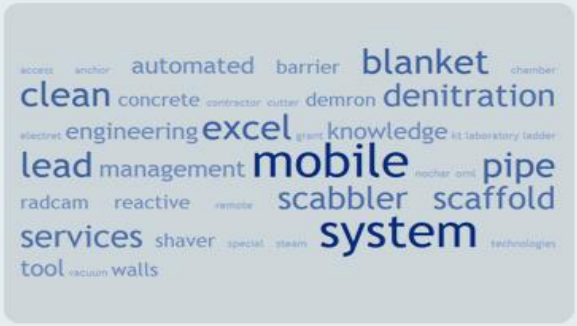
TOP 5 DEMOGRAPHICS



FIU FACTOR



POPULAR KEYWORDS



BROWSERS

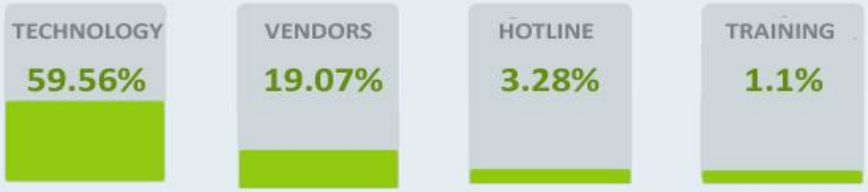
CHROME
39.49%

INTERNET EXP.
35.63%

FIREFOX
13.33%

SAFARI
9.28%

MODULE DESTINATION



Project 4 – D&D KM-IT – Strategic Approach

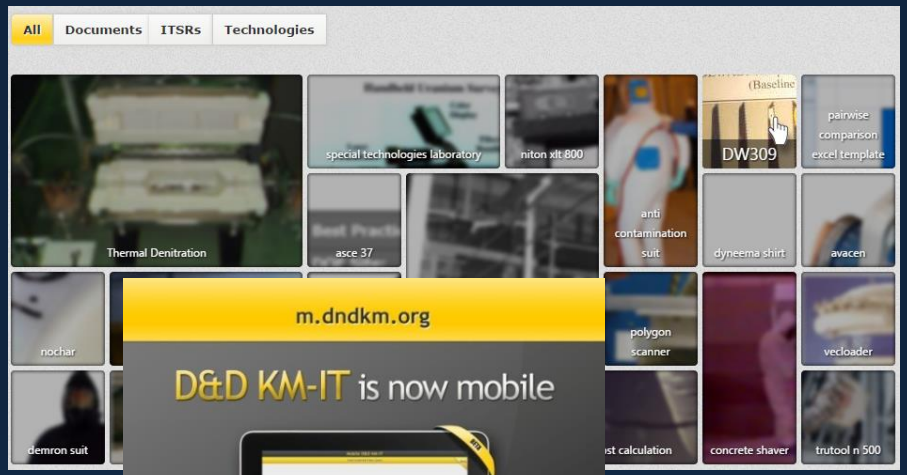
- Optimize search engine to increase site traffic
- Supplement original content from other sources
- Get linked and get more backlinks
- Use of social media
- Promote web presence w/ newsletters, updates, direct email
- Collaborate with Wikipedia, Powerpedia
- Engage user involvement via user advisory group and feedback loop on website
- Evaluate and incorporate information from web analytics
- Offer original and quality content

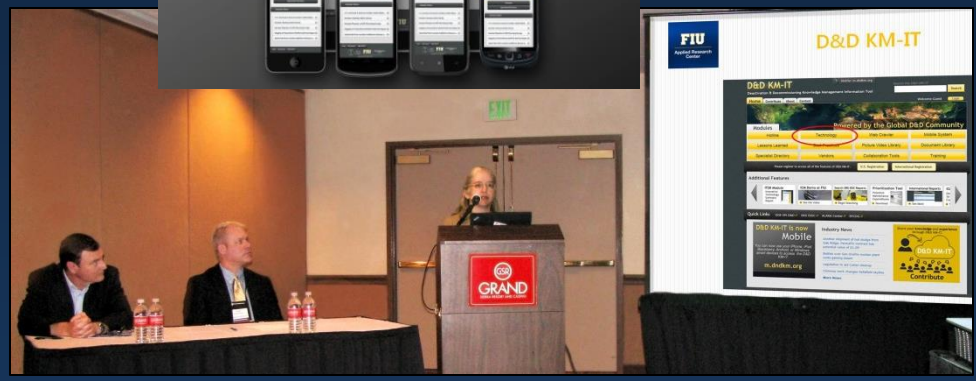
Project 4 – D&D KM-IT – Outreach

- Participation in conferences (e.g., Waste Management Symposium, DD&R, International Conference of Environment and Waste Management)
- Newsletters to registered D&D KM-IT users, SMS, and published vendors
- Periodical memos from DOE HQ to site managers
- Collaboration with other databases/systems like Decontamination and Decommissioning Science Consortium (DDSC), OSTI and ORAU
- Engage DOE Project Directors
- Engage DOE EM-72

Project 4 – D&D KM-IT – Accomplishments

- Deployment of popular display on homepage
- Deployment of Lessons Learned and Best Practices lite mobile applications
- Presented at Decommissioning and Remote Systems (ANS Conference) 2014 and Waste Management 2015

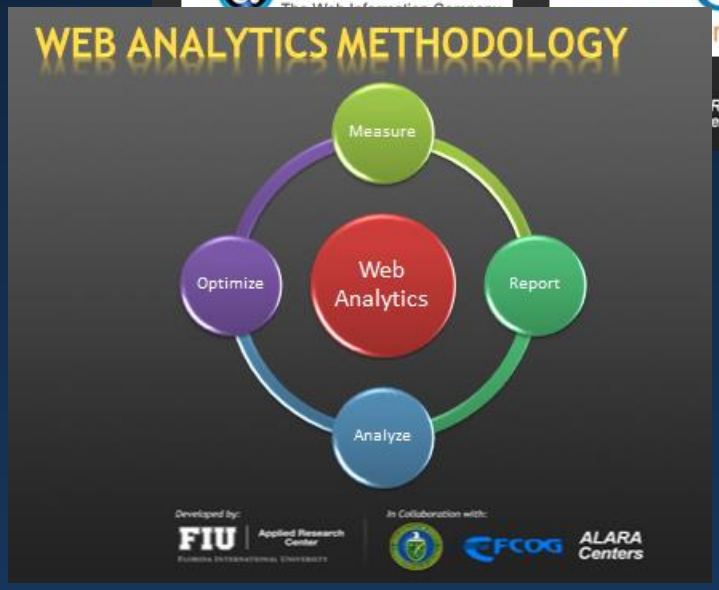




Project 4 – D&D KM-IT – Accomplishments

FIU Applied Research Center

Presented approaches and lessons learned in developing web analytics for D&D KM-IT to the DOE Office of Learning & Workforce Development (HC-21) on August 19, 2014

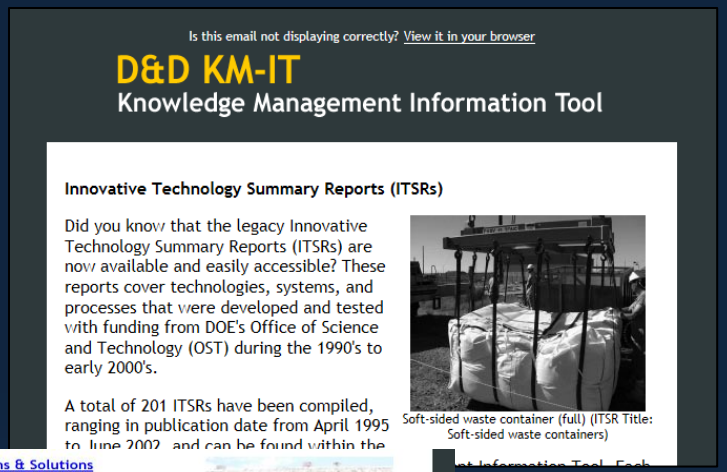


Project 4 – D&D KM-IT – Accomplishments

FIU Applied Research Center

Developed and distributed newsletters:

- Availability of ITSRs on D&D KM-IT
- Fixatives and other contamination control products
- Innovative PPE at Hanford


Is this email not displaying correctly? View it in your browser

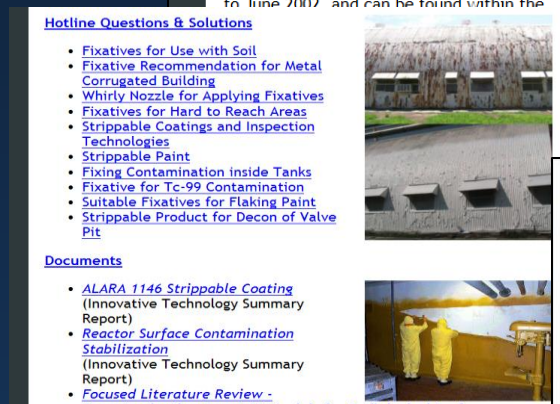
D&D KM-IT
Knowledge Management Information Tool

Innovative Technology Summary Reports (ITSRs)

Did you know that the legacy Innovative Technology Summary Reports (ITSRs) are now available and easily accessible? These reports cover technologies, systems, and processes that were developed and tested with funding from DOE's Office of Science and Technology (OST) during the 1990's to early 2000's.

A total of 201 ITSRs have been compiled, ranging in publication date from April 1995

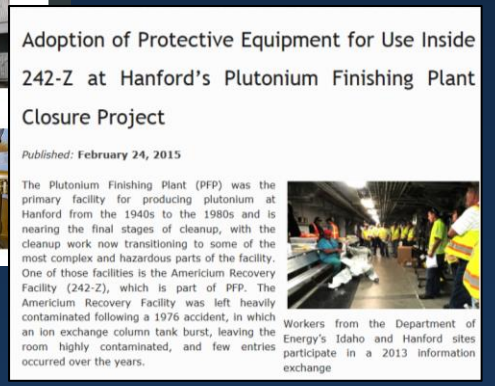
Soft-sided waste container (full) (ITSR Title: Soft-sided waste containers)


Hotline Questions & Solutions

- Fixatives for Use with Soil
- Fixative Recommendation for Metal Corrugated Building
- Whirly Nozzle for Applying Fixatives
- Fixatives for Hard to Reach Areas
- Strippable Coatings and Inspection Technologies
- Strippable Paint
- Fixing Contamination inside Tanks
- Fixative for Tc-99 Contamination
- Suitable Fixatives for Flaking Paint
- Strippable Product for Decon of Valve Pit

Documents

- *ALARA 1146 Strippable Coating* (Innovative Technology Summary Report)
- *Reactor Surface Contamination Stabilization* (Innovative Technology Summary Report)
- *Focused Literature Review - Decontamination Agents/Materials for Radiological Surface*


Adoption of Protective Equipment for Use Inside 242-Z at Hanford's Plutonium Finishing Plant Closure Project

Published: **February 24, 2015**

The Plutonium Finishing Plant (PFP) was the primary facility for producing plutonium at Hanford from the 1940s to the 1980s and is nearing the final stages of cleanup, with the cleanup work now transitioning to some of the most complex and hazardous parts of the facility. One of those facilities is the Americium Recovery Facility (242-Z), which is part of PFP. The Americium Recovery Facility was left heavily contaminated following a 1976 accident, in which an ion exchange column tank burst, leaving the room highly contaminated, and few entries occurred over the years.

Workers from the Department of Energy's Idaho and Hanford sites participate in a 2013 information exchange

Project 4 - D&D KM-IT – Accomplishments - Robotics

FIU Applied Research Center

- Database of robotic technologies, originally developed by NuVision/Cogentus.
- Integrated into the D&D KM-IT framework for ongoing hosting/ dissemination/ maintenance of the information.
- New “Robotics” group created within the Technology module.
- Over 440 robotic technologies are currently live on D&D KM-IT.

Project 4 - D&D KM-IT – Accomplishments - Robotics

FIU Applied Research Center

D&D KM-IT

Mobile: m.dndkm.org

Deactivation & Decommissioning Knowledge Management Information Tool

Home | Contribute | About | Contact | More Modules

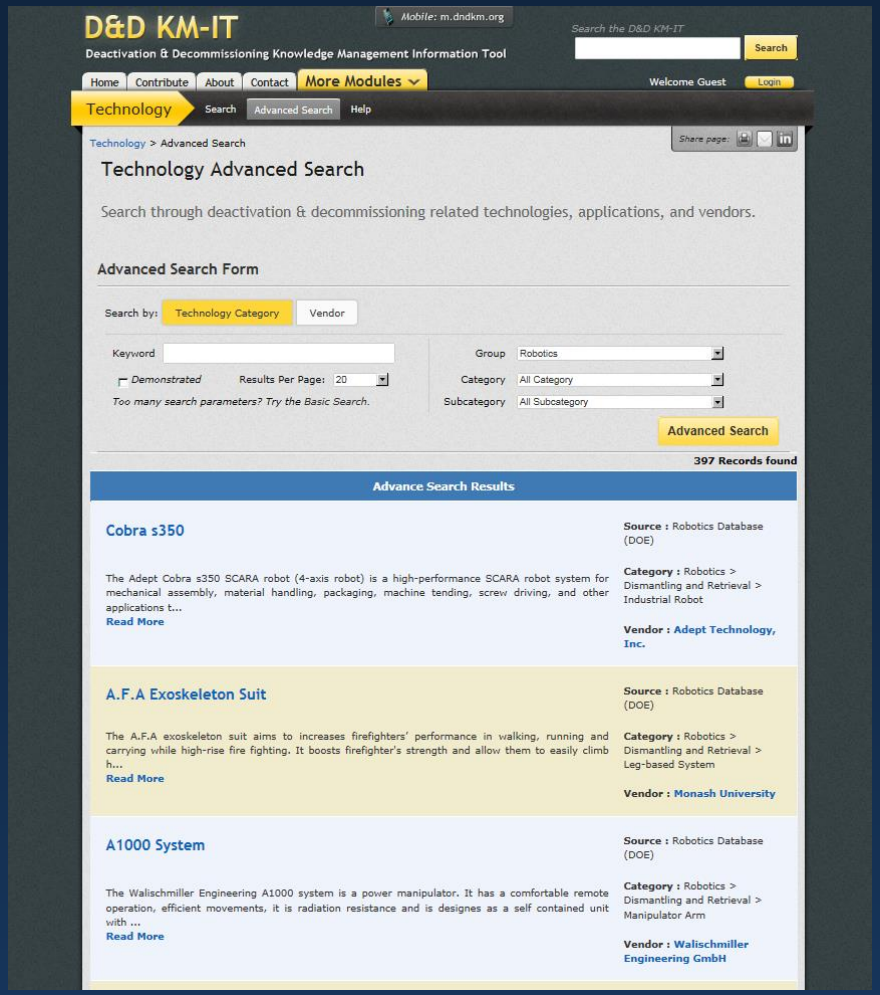
Technology | Search | Advanced Search | Help

Technology

A database of robotic technologies, originally developed by NuVision/Cogentus, has been integrated into the D&D KM-IT framework within the Technology module. All of the data from the original database and accompanying information (photos, documents, and videos, etc.) are being made available on D&D KM-IT. Simply use the Technology Advance Search feature and select "Robotics" from the "Group" pull-down menu to browse these new robotic technology entries.

Click the image below to view Robotics Technologies.

The AscTec Hummingbird



Project 4 - D&D KM-IT – Accomplishments - Robotics

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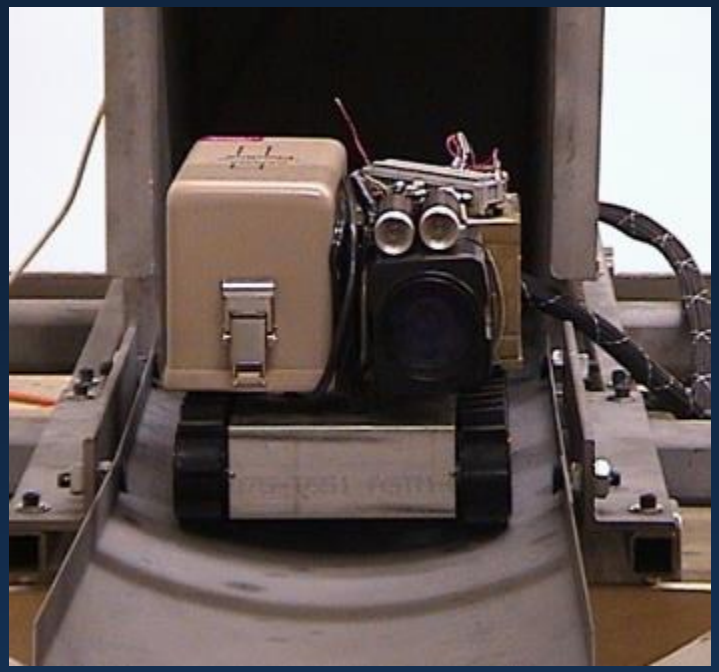
Robot Characterization System (Oak Ridge National Lab)



Gamma Rover (PNNL)

Mighty Mouse (Sandia National Lab)

Project 4 - D&D KM-IT – Accomplishments - Robotics

GI Joe (SRNL)

Firefly (Ascending Technologies)

Phantom (DJI)

HRP-3 Promet MK-II by Kawada Industries

Proto X nano copter (Estes)

Project 4 - D&D KM-IT – Future Work

FIU Applied Research Center

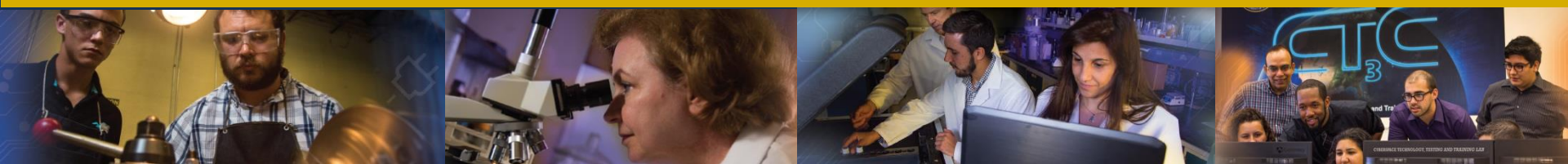
As part of the renewal work scope for the new Cooperative Agreement (2015-2020) FIU will:

- Design and develop the mobile application for the selection of fixatives in an online and offline environment.
- Research creating native mobile applications for each of the three major mobile device platforms with the ability to work offline and sync with the main system when the connection is available. Work with DOE sites to identify additional high priority needs for mobile applications and perform feasibility analysis for design, development and deployment.
- Expand the D&D knowledge base to other EM areas (e.g., high-level waste, etc.) based on results of a feasibility analysis.

Global Knowledge Sharing & Collaboration for EM

Dr. Himanshu Upadhyay

Florida International University



Project 4 – Global Collaboration

FIU Applied Research Center

Global Knowledge Sharing & Collaboration for EM

- Pilot concept proposed to International Program and presented to US/UK working group at Waste Management 2014
- Awarded and kick off telecon conducted late September 2014 with participation of International Program and EM-13
- Developed Project Technical Plan
- EM-72 invited to participate in pilot project
- Presented at WM15 to International Standing Committee meeting
- Contacted NDA and NNL for active participation in development of this project

Project 4 – Global Collaboration

- **Study of Protocols and Standards for Collaboration and Knowledge Sharing with the International Community**

  Pilot U.S.-U.K study to identify and analyze international nuclear and cyber standards, regulations, and protocols sharing non-classified nuclear decommissioning related information. The study will thoroughly assess the potentials and limitations for the development and maintenance of a web-based collaboration environment.

- **Develop Pilot System for Collaboration with the UK**

  Develop, test and deploy a secured collaborative knowledge/information sharing pilot platform for unclassified information to the stakeholders for D&D collaboration within the participating agency (UK).

Project 4 – Global Collaboration – Accomplishments

FIU Applied Research Center

Section A: Source Documents

- Source documents compiled and retained for reference
- Types of documents include: federal regulations, agency protocols, conference proceedings, international treaties, bilateral arrangements

Section B: Document Reviews

- An executive summary & the direct implications of each source document

Section C: Framework

- Provides recommendations organized by topic
- Highlights potential conflicts in regulations
- Framework developed using the Source Documents Reviews - Section B

Project 4 – Global Collaboration – Accomplishments

FIU Applied Research Center

Reviewed Documents:

- Memorandum for Chief Information Officers of Executive Departments and Agencies: Requirements for Accepting Externally-Issued Identity Credentials (US Office of Budget and Management, 2011)
- Arrangement between the Office for Nuclear Regulation of Great Britain and the United States Department of Energy for the Exchange of Information and Cooperation in the Area of Nuclear Safety (DOE & the Office for Nuclear Regulation of Great Britain, 2014)
- A discussion on "Interagency Collaboration: Implications of a Common Alignment of World Regions among Select Federal Agencies" (United States Government Accountability Office, 2011)
- Collaboration – How HHS Agencies Work with Outside Entities (U.S Department of Health and Human Services, 2014)

Documents in process of being reviewed:

- A Resource on Strategic Trade Controls (U.S. Department of State, 2011)
- The International Traffic in Arms Regulations (ITAR) (U.S. Department of State, 2015)
- Export Administration regulations (EAR) (U.S. Department of Commerce, 2015)
- The Arms Export Control Act (AECA) (U.S. Department of State, 1976)
- NNSA Export Control Regulations (National Nuclear Security Administration, 2015)
- Treaty on the Non-Proliferation of Nuclear Weapons (NPT) (1970)

Project 4 – Global Collaboration

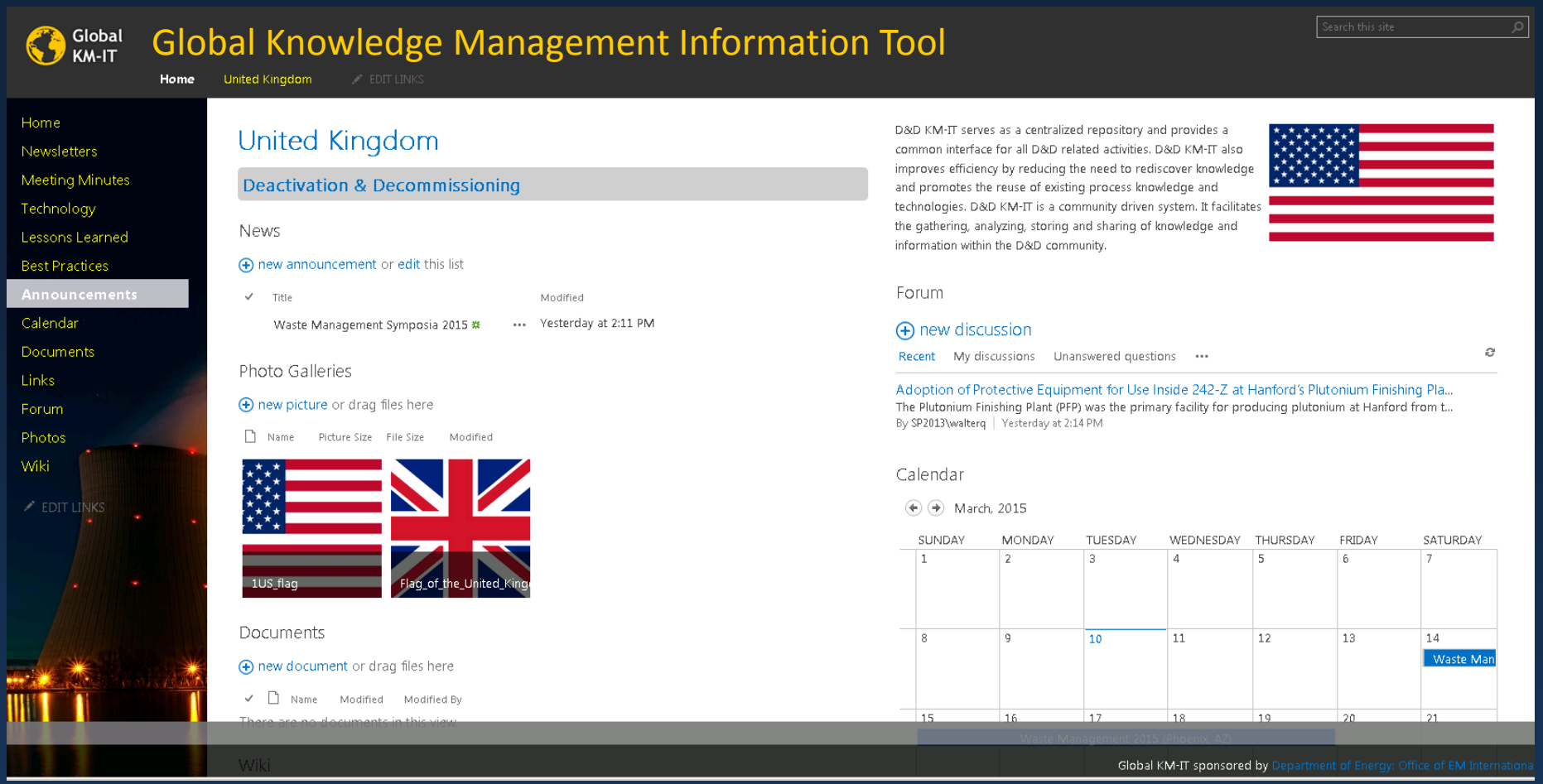
FIU Applied Research Center

International Knowledge Sharing & Collaboration Platform for unclassified information

- Platform will be developed based on the Protocols and Standards for knowledge sharing established in Task 1 with focus on U.K.
- Platform may contain features like Newsletters, Meeting Minutes, Technology, Lessons Learned, Best Practices, Documents, Announcements, Calendars, Link, FAQ, Wikis, etc.
- Information that can be shared with multiple countries vs. Shared within participants of specific country
- Presentation to waste management team for International collaboration for requirement gathering

Project 4 – Global Collaboration

FIU Applied Research Center

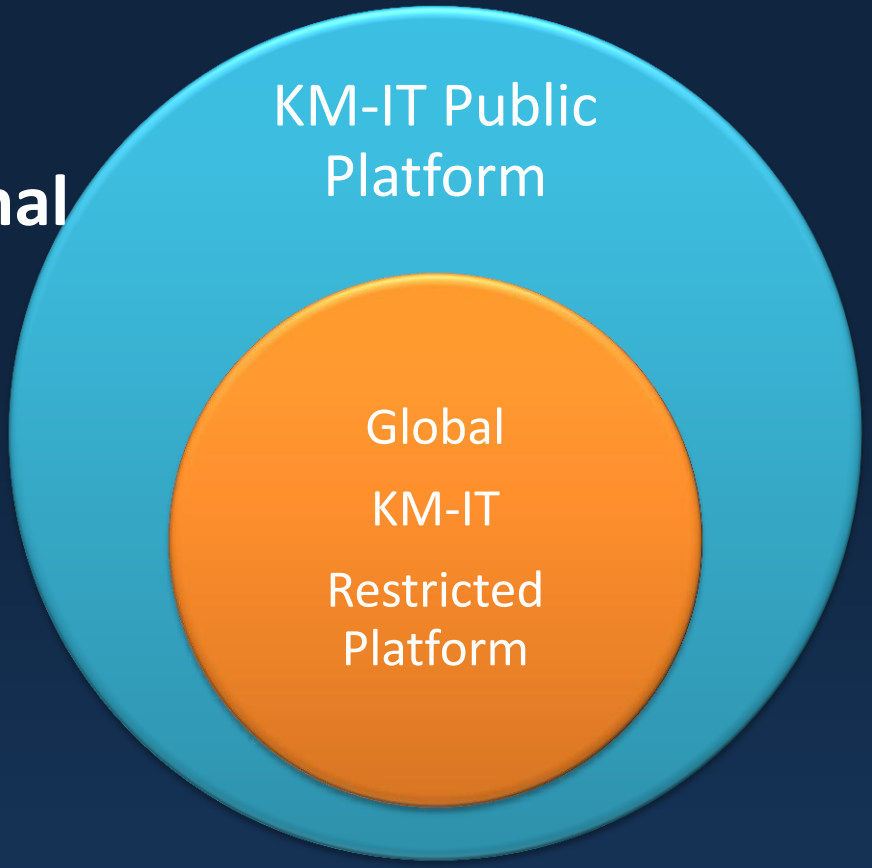


Project 4 – Global Collaboration

FIU Applied Research Center

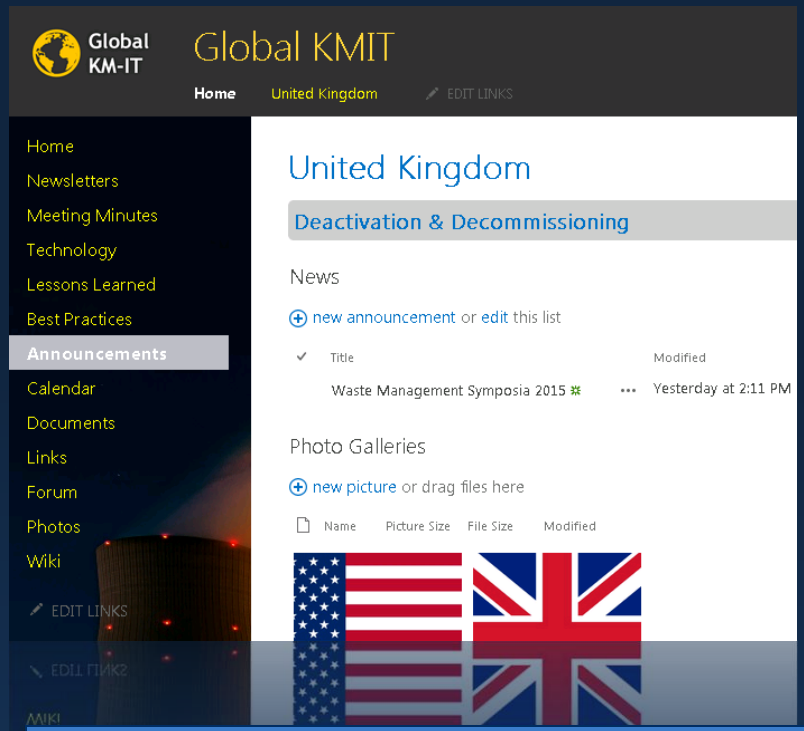
Global KM-IT Platform

- Designed with International Standard and Protocol
- Knowledge Sharing
- Collaboration Platform
- Restricted Access to participating countries
- Controlled Information

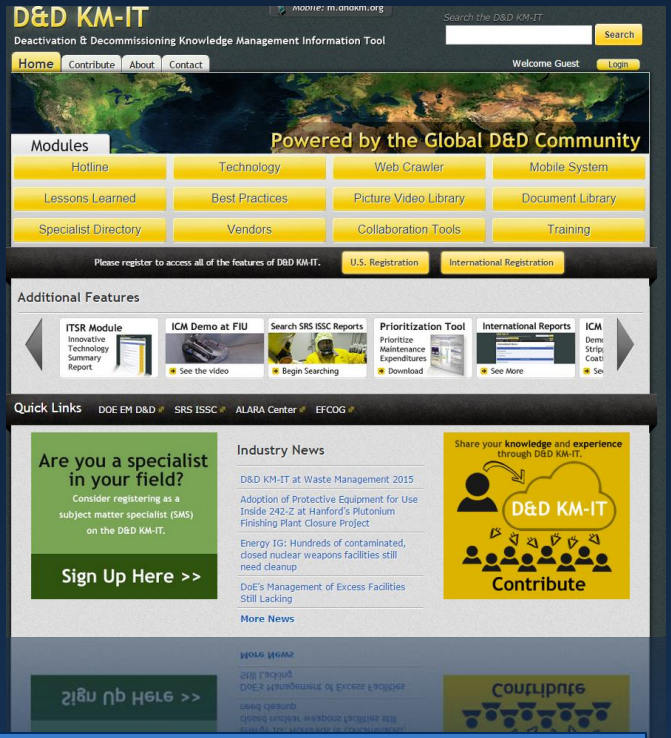


Project 4 – Global Collaboration

FIU Applied Research Center



Publish Knowledge

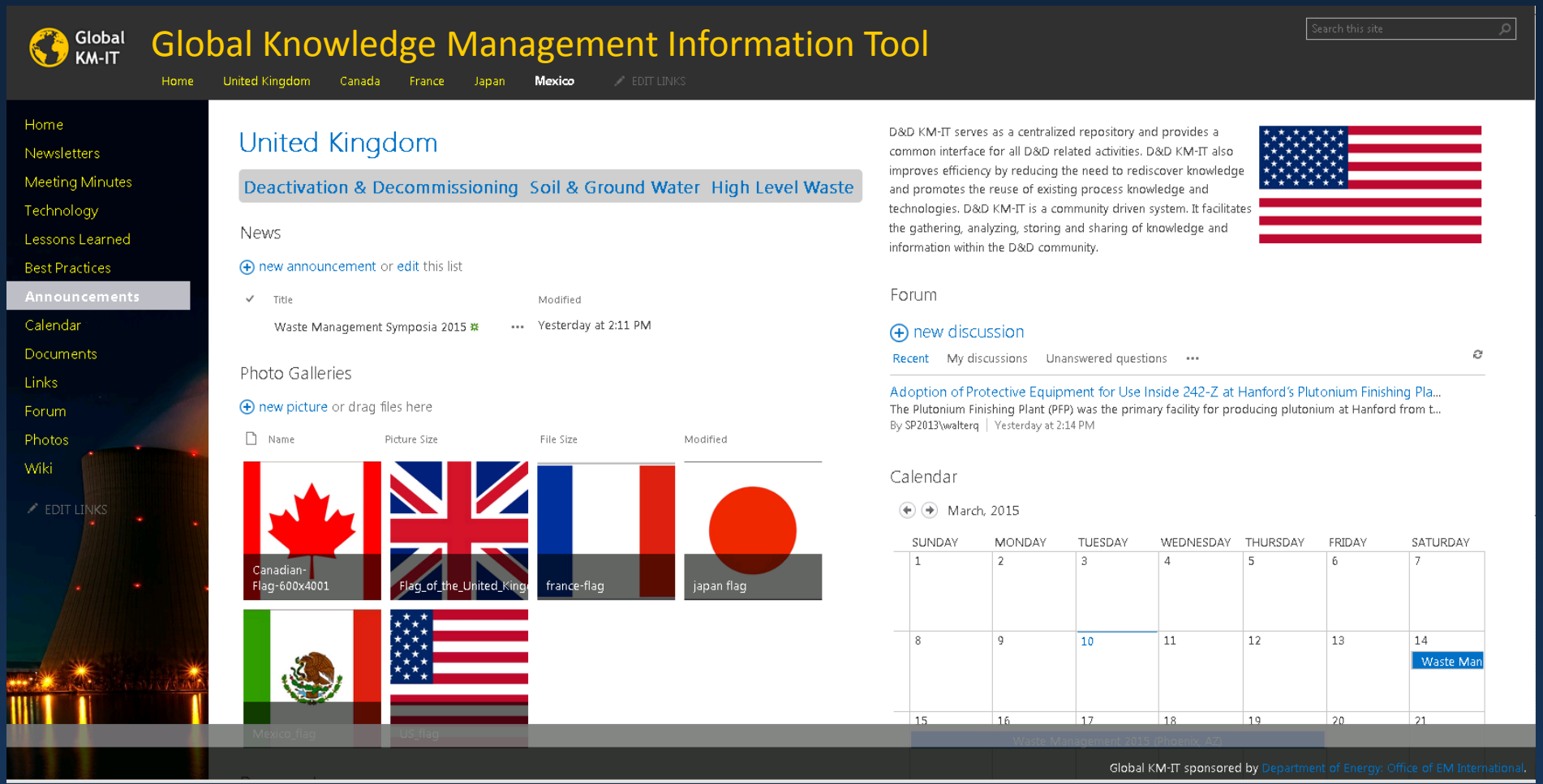


Secure Platform

Restricted Access

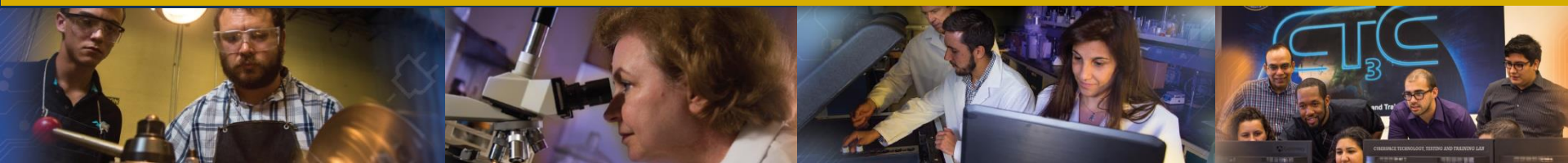
Public Access

Project 4 – Global Collaboration



Masters, PhDs, Internships, and Conferences

Florida International University



Project 4 - Masters & Ph.D.s

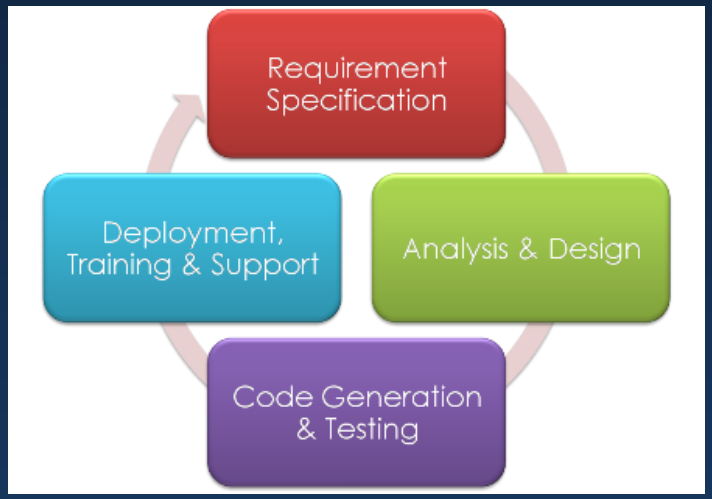
- Elicek Delgado Cepero, Master's Thesis, *Structural Health Monitoring Inside Concrete and Grout Using the Wireless Identification Sensing Platform (WISP),* Electrical Engineering (Spring 2013)
- Sainath Munavalli, Master's Thesis, *Structural Data Acquisition Using Sensor Network,* Electrical Engineering (Spring 2013)
- Mariela Silva, Master's Thesis, *SharePoint Based Secured Collaboration System,* Engineering Management (Fall 2013)
- Revathy Venkataraman, Master's Thesis, *Performance Evaluation of Mobile Applications with KMIT Technology Web Services using Windows Communication Foundation,* Information Technology (Spring 2014)
- Sandhya Appunni, Master's Thesis, *Design and Implementation of Disaster Event Information System,* Computer Science (Spring 2014)

Project 4 – Internships

FIU Applied Research Center

Steve Noel (DOE Fellow - Class of 2013)
Undergraduate in computer science

- Participated in a summer internship at Savannah River National Laboratory (SRNL) under the mentorship of Mary K. Harris.
- Developed web applications to convert on-site desktop applications into web applications using the Aptana program.
- Enabling employees across the DOE complex and national laboratories to use applications/software that were previously only available through on-site computers.



Project 4 – Conferences & Presentations

FIU Applied Research Center

- D&D Remote Platform and D&D KM-IT presented at ANS Decommissioning and Remote Systems (June 2014)
- WIMS poster presented at WM15 (March 2015)
- D&D KM-IT presented at WM15 (March 2015)

Project 4 – Conferences & Presentations

FIU Applied Research Center

Student Posters at Waste Management 2015

- Innovative Applications and Demonstration of Advanced Fogging Technologies to Address Loose Contamination at Savannah River Site's 235F Facility - Jesse Viera (DOE Fellow)
- Malware Forensics on Mobile Devices for DOE-EM Applications - Andrew De La Rosa (DOE Fellow)
- D&D Decision Model and Mobile Application for Selection of Fixative, Strippable Coating, and Decontamination Gel Products - Meilyn Planas (DOE Fellow)
- D&D Knowledge Management Information Tool Feasibility Study for Cross-Platform Mobile Applications - Steve Noel (DOE Fellow)
- Deactivation and Decommissioning Web Log Analysis Using Big Data Technology - Santosh Joshi (Graduate Research Assistant)
- Best Practices Mobile Application for D&D KM-IT - Jorge Deshon (DOE Fellow)
- Knowledge Management Information Tool Analytics with Distributed Database Engine - Kavitha Megalageri (Graduate Student Assistant)