



We Put Science To Work

The Retrieval Knowledge Center Evaluation of Low Tank Level Mixing Technologies for DOE High Level Waste Tank Retrieval (10516)

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Agenda

HOW DID WE GET THERE?

Overview

Background

Why a retrieval knowledge center

Initial objectives / goals

“Building a Foundation”

The challenges that lead to gaps in retrieval

Development and mock-up of retrieval technologies

WHERE DID WE GO?

Low Level Mixing

Addressing a challenge through technology demonstration

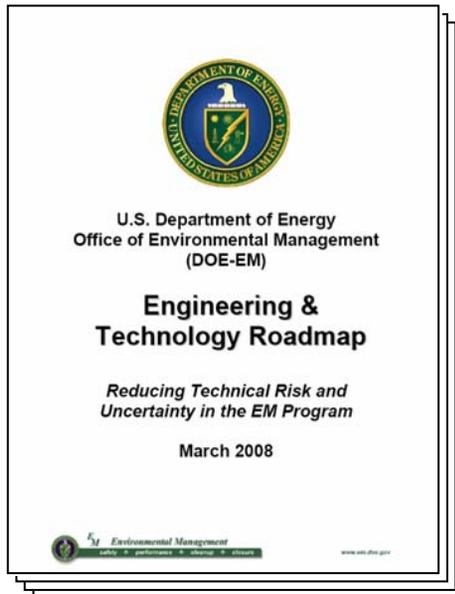
Evaluation criteria

Instrumentation

Test matrix

Background – Waste Retrieval Strategic Initiative

DOE-EM Engineering & Technology Roadmap issued to Congress in 2008 outlined programmatic risks and uncertainties to the cleanup mission.



Engineering & Technology Roadmap

• Waste Processing Program Area

Identifies Technical Risk & Uncertainty in Waste Retrieval

• **Reliable & Efficient Waste Retrieval Technologies Strategic Initiative**

- *To develop optimization strategies & technologies that lead to successful processing & tank closure, and,*
- *Develops a suite of demonstrated cleaning technologies that can be readily deployed to achieve required levels of waste removal*

Background – Genesis of the Retrieval Knowledge Center

May 2008 DOE-EM Office of Waste Processing issued a Multi-Year Program Plan identifying approaches to reduce the technical risk and uncertainty outlined in the E&T Roadmap.

The approach to address the Roadmap initiative to **Develop a Suite of Residual Waste Removal Technologies** described:

Development of a “toolbox” of technology solutions to improve waste removal operations,

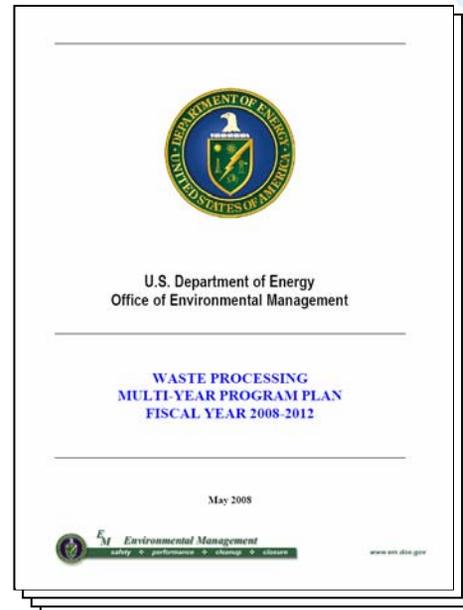
identification and development of requirements and deployment strategies for multi-use adaptable concepts and technologies,

collection and evaluation of lessons learned by a complex-wide team of technical experts, and,

development of a method of communication for the “toolbox”.

“... to reduce technical risk and uncertainty of EM waste processing ... through the identification and timely development of solutions to technical issues.”

- DOE-EM WP Multi-Year Program Plan



*Mid-year funding approved to start
Retrieval Knowledge Center (RKC) task
in April 2008*

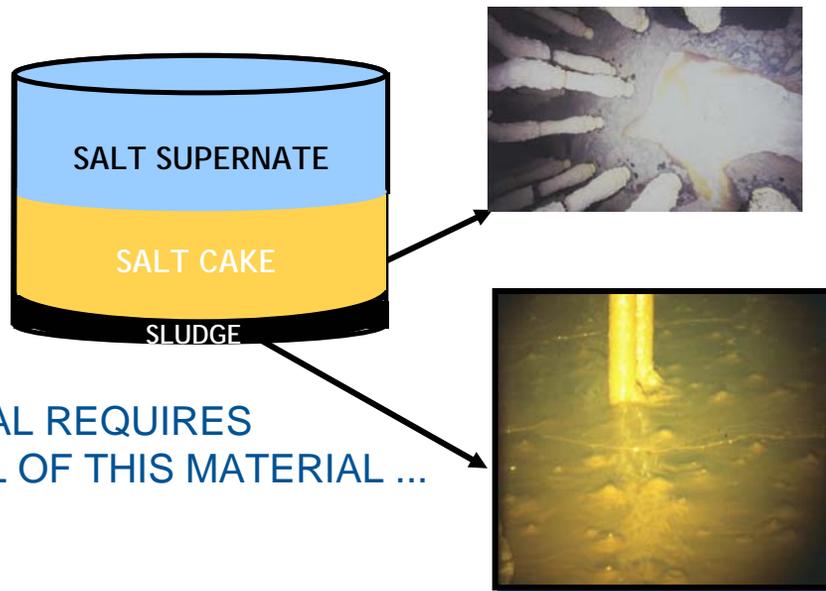
Why a Retrieval Knowledge Center

Our sites are working to process over 80M gallons of waste from aging underground tanks

Retrieval is the act of removing the waste material from the tank

The wastes constituents and properties have been described as unique to the tank

There are over 200 tanks that will be retrieved over the life of the mission



RETRIEVAL REQUIRES
REMOVAL OF THIS MATERIAL ...

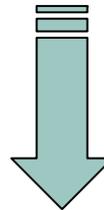


... AND THE RESIDUAL
MATERIAL AFTER BULK
WASTE REMOVAL.

Retrieval Knowledge Center (RKC) Initial Objectives

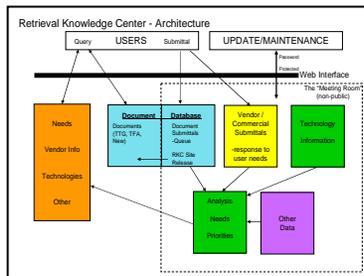
✓ Form a cross-discipline, multi-organizational team to evaluate retrieval technologies, lessons learned and requirements

✓ Develop an approach and tools needed to share information



Co-PIs named from SRNL and PNNL with NuVision Engineering to develop “core team”

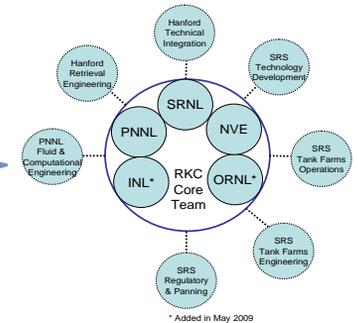
Developed goals to;



Centralize available technical information on retrieval

Develop technical requirements, challenges and lessons of retrieval

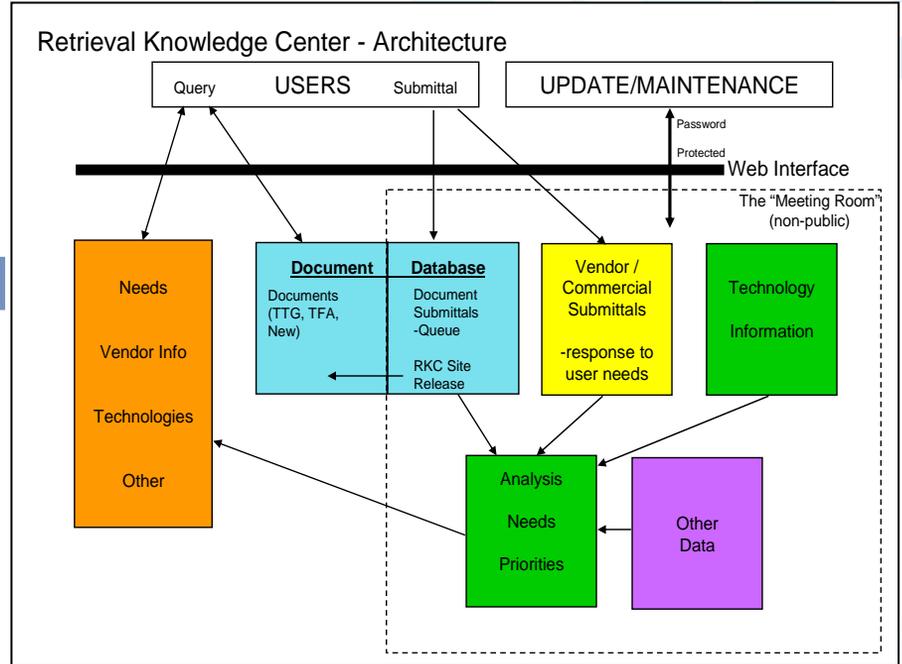
Analyze technical gaps to retrieval and developing plans to address them



What we called "Knowledge" ...

DATA "TOOL" ...

- Re-constitute (and update) contents of TFA database
- Improve search-ability
- Add modern features
- Add cyber "meeting room"



CONCEPT

... and EXPERTISE

- Invite current expertise into discussions of technical needs
- Complete initial reviews / evaluations based on need

... resulted in a Database (and Website)

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Create User Account

Creating a user account is free and as a registered user you get the following additional features:

- User's recently viewed Documents
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- User can save searches for future reference.

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Type in words and/or choose values, then click Search button below.

Title

Author

Document Number

Publication Date Between start date and end date

Related Sites

Program Project

Technology

Keywords

Sort by Results to show

U.S. DEPARTMENT OF ENERGY RKC RETRIEVAL KNOWLEDGE CENTER

HOME VIEW DOCUMENTS SEARCH CREATE USER ACCOUNT LOGIN

Search results for "retrieval"

[Advanced Search](#)

Note: Documents in Adobe Acrobat Portable Document Format (PDF) can be viewed and printed through the Acrobat Reader. Instructions for downloading the Acrobat Reader and integrating it with your browser are available [here](#).

Thumbnails for legacy documents only provide a preview of first page of document. Newly uploaded document thumbnails will provide a preview of introduction or executive summary, whichever the document contains.

910 documents found. Sort by Results to show

Technical Review of Retrieval and Closure Plans for the INEEL INTEC Tank Farm Facility

[View Abstract](#)

Related Sites: Idaho National Environmental Engineering Laboratory

Technology: Closure, Retrieval

Author: J.A. Bamberger, B.L. Burks, K.D. Quigley, S.W. Butterworth, D.D. Falter

Document Number: PNNL-13651

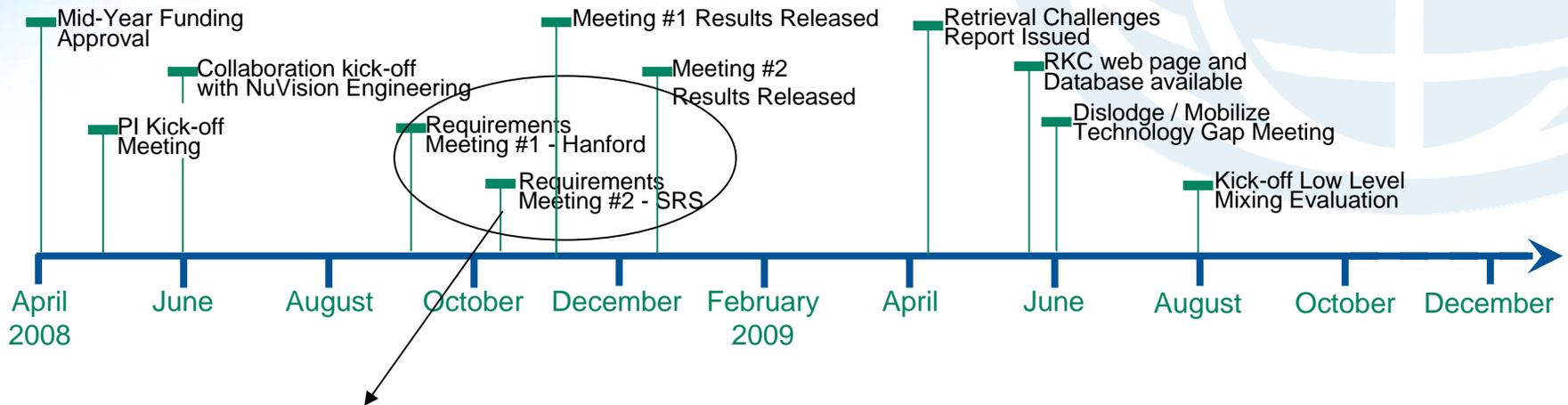
[Previous document](#) Published Date: 9/20/2001

Found at <http://rkc.pnl.gov>

Database Status

- **Successfully ported contents of existing TFA retrieval documents**
- **Web site and database launched May 2009**
- **Sizeable upgrade and upload completed in late-August 2009**
- **Initiated and completed collection of recent retrieval data and documents (up until October 2009)**

RKC Timeline since April 2008



Tank Farm and Laboratory participation at both facilitated meetings. Resulted in development of document describing the high level challenges to retrieval.

And for reference;

- (1) The RKC web pages and database is accessible at <http://rkc.pnl.gov>
- (2) The challenges are documented in "EM-21 Retrieval Knowledge Center: Waste Retrieval Challenges (PNNL-18356 and SRNL-STI-2009-00231)
- (3) Gaps and options for addressing gaps in mobilizing and dislodging tank heels are documented in "EM-31 Retrieval Knowledge Center Meeting Report: Mobilize and Dislodge Tank Waste Heels (SRNL-STI-2009-00535)