

Introduction

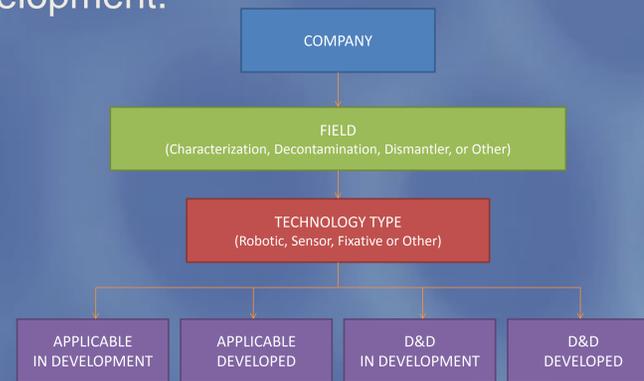
The purpose of the Office of Deactivation and Decommissioning (D&D) and Facility Engineering is to reduce project technical risk and uncertainty through Technology Development and Deployment, thus enabling the implementation of safe, cost-effective, efficient and timely D&D of facilities and their contents. The D&D and handling of contained hazardous/radioactive materials could be facilitated significantly with the use of remote and/or advanced technologies including, but not limited to, robotic technologies. These technologies allow the process to be done in a safer, faster and more cost-effective manner; or in specific cases, it is the only possible approach.

Purpose of Compendium

The objective of the 2009 summer internship was to provide the U. S. Department of Energy (DOE) Office of D&D a compendium of D&D technologies. The main benefit of developing this compendium is to facilitate the identification of available technologies for specific needs. To accomplish this, the compendium was designed to include an inventory of the technologies currently used or that could be used for D&D. Having an inventory of the current technologies and the research available, can help identify areas in which investments should be made.

Compendium Development

The compendium was organized by categorizing the Technology Providers, Experts, & University/Commercial Research Programs by their companies, followed by the type of technology and field the technology was built for or could work for. Finally, the technologies were sorted according to whether they were for D&D purposes, applicable to D&D, developed or in development.



Categorization Flowchart

Main Source of Data

- Waste Management Technical Reports
- DOE Information Bridge
- Head of robotic departments
- MIT Review Magazine

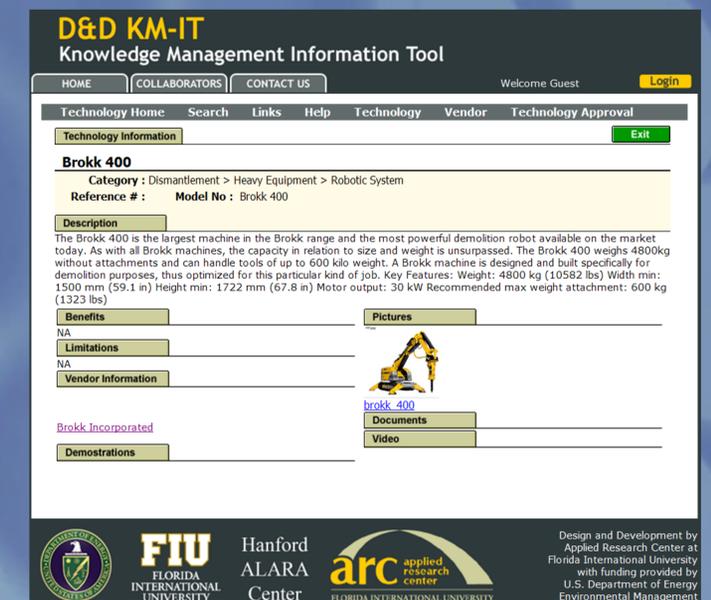
Technology Name	Brief Description (Directly from Vendor)	Picture	Spec Sheets
Brokk 50	The smallest demolition robot in the Brokk family is Brokk 50. Originally introduced to strip down tiles in old bathrooms. Brokk 50 is able to pass through 60 cm wide doorways and is therefore the perfect machine wherever narrow openings have to be considered. It can be transported in a standard passenger elevator or even climb up and down ordinary stairways. The low weight of Brokk 50 enables it to be used in most normal buildings, even on weak floor structures. Its small dimensions also allow it to operate in very confined spaces, such as bathrooms of only 3 sq m floor area. Key Features: Weight: 470 kg (1036 lbs) Width min: 590 mm (23.2 in) Height min: 940 mm (37 in) Motor output: 5.5 kW Recommended max weight attachment: 70 kg (154 lbs)		http://www.brokk.com/img/Inform%20136_0020_9%201_A.pdf
Brokk 90	Brokk 90 is one of the most versatile machines available on the market for demolition in confined spaces. It incorporates the best features of previous Brokk models and all the experience gained by Brokk operators and owners and fills the gap between our smallest Brokk 50 and the next size, Brokk 160. Key Features: Weight: 980 kg (2161 lbs) Width min: 780 mm (30.7 in) Height min: 1210 mm (47.6 in) Motor output: 11 kW Recommended max weight attachment: 150 kg (331 lbs)		http://www.brokk.com/img/Inform%20136_0015_8%201_B.pdf

Initial Stage of Compendium

Source: <http://www.brokk.com/>

Results

The technologies identified during the development of the compendium will be made available to the general public through the FIU/DOE Knowledge Management Information Tool (KM-IT) (www.dndkm.org).



D&D KM-IT
Knowledge Management Information Tool

Technology Home Search Links Help Technology Vendor Technology Approval

Brokk 400
Category: Dismantlement > Heavy Equipment > Robotic System
Reference #: Model No : Brokk 400

Description
The Brokk 400 is the largest machine in the Brokk range and the most powerful demolition robot available on the market today. As with all Brokk machines, the capacity in relation to size and weight is unsurpassed. The Brokk 400 weighs 4800kg without attachments and can handle tools of up to 600 kilo weight. A Brokk machine is designed and built specifically for demolition purposes, thus optimized for this particular kind of job. Key Features: Weight: 4800 kg (10582 lbs) Width min: 1500 mm (59.1 in) Height min: 1722 mm (67.8 in) Motor output: 30 kW Recommended max weight attachment: 600 kg (1323 lbs)

Benefits NA
Limitations NA
Vendor Information [Brokk Incorporated](#)

Documents
Video

Design and Development by
Applied Research Center at
Florida International University
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U.S. Department of Energy
Environmental Management

Final Stage of Compendium

Future Work

Additional research will be conducted to include the following technologies:

- Demolition Robotic Platforms
- Characterization Robotic Platforms
- Pipe Inspection Platforms

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