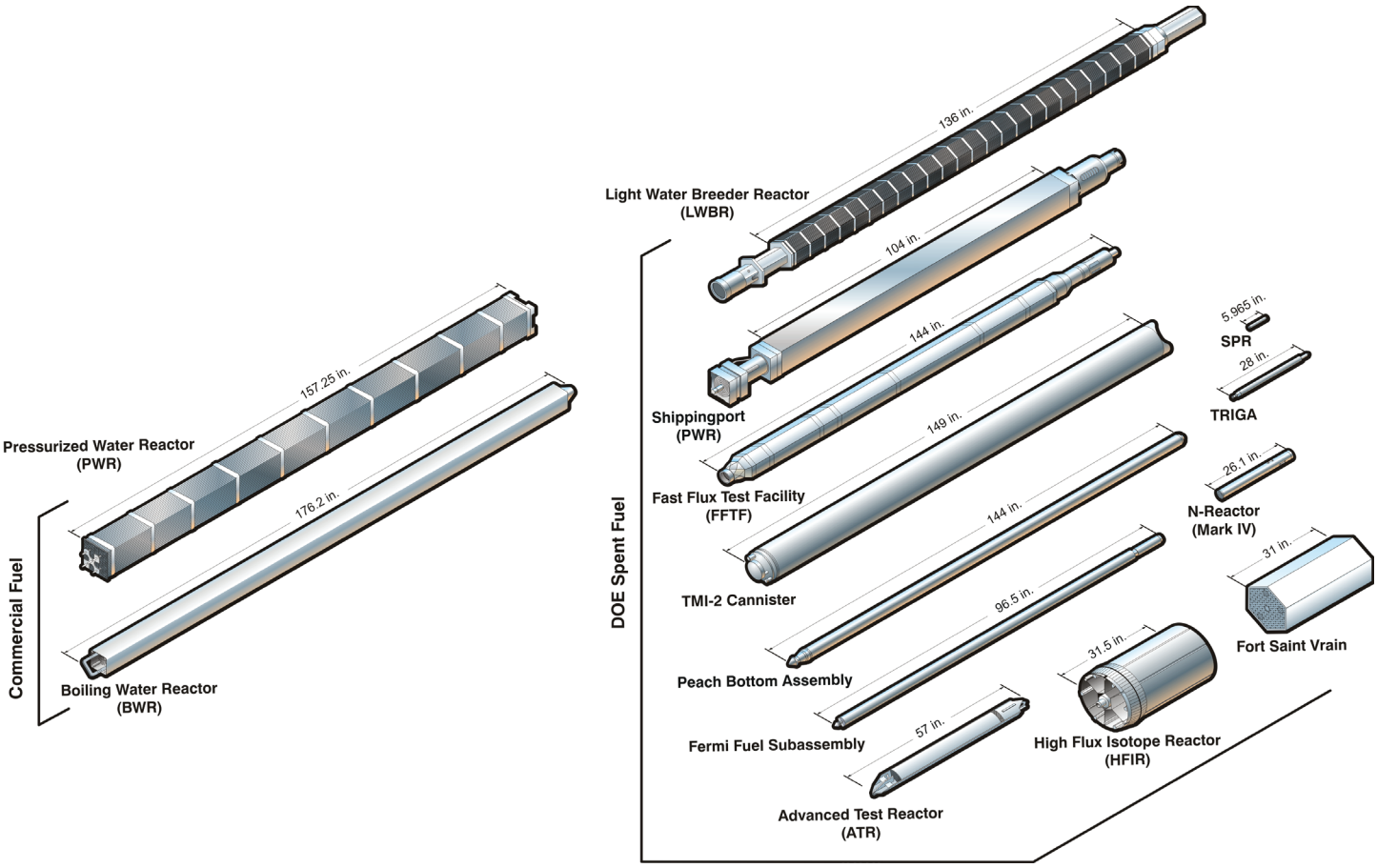

Spent Fuel Database

The Spent Fuel Database provides a single source of data for all Department of Energy (DOE) spent nuclear fuel in a standard format. The Spent Nuclear Fuel Database contains information on physical, chemical, and radionulcide inventory of all DOE spent nuclear fuel, along with storage information.

Science

INL Idaho National Laboratory

Overview

The Spent Fuel Database stores detailed spent nuclear fuel characterization information for all the DOE spent nuclear fuel. DOE spent nuclear fuel includes fuel irradiated in DOE reactors (research, test, developmental, and materials production), other domestic research reactors, foreign research reactors, and commercial fuel managed by DOE. This data supports organizations responsible for managing and disposing of the DOE-managed spent nuclear fuel.

Project Description

The Spent Fuel Database is a DOE database developed and maintained by the National Spent Nuclear Fuel Program at the Idaho National Laboratory. All sites throughout the world that are managing or generating DOE spent nuclear fuel provide information to the database, which is updated periodically.

Benefits

Before development of the Spent Fuel Database, it was necessary to contact each of the reactor/storage facilities individually to obtain information. In addition, each of the reactor/storage sites provided information on different properties, in differing formats, with varying levels of detail. The Spent Fuel Database provides users with a single source of informa-

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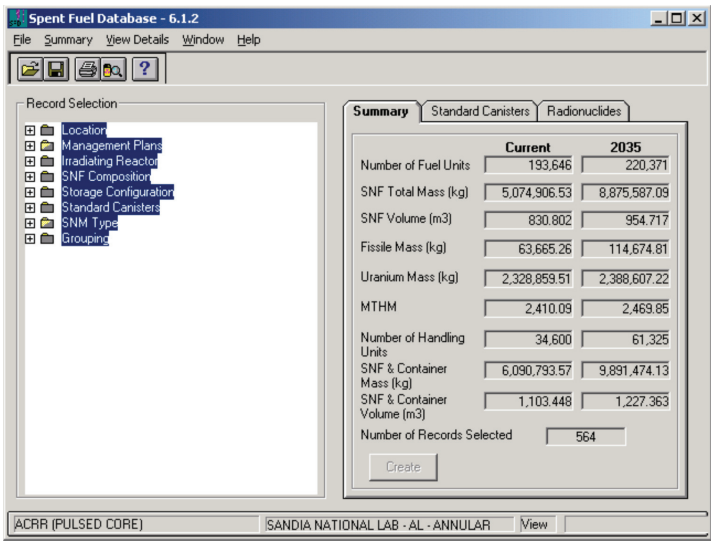
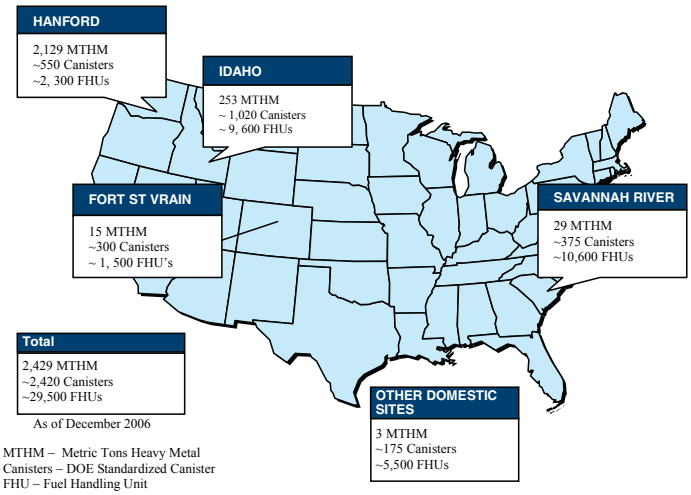


tion for all DOE spent nuclear fuel, and supplies information in a consistent format. Knowledgeable staff review all of the Spent Fuel Database information and ensure traceability of data. The database capabilities provide for data searches based on a wide range of parameters. The database is available to help address spent nuclear fuel management questions and is a tool for developing cost-effective solutions to spent nuclear fuel management issues.

Unique Capabilities

The Spent Fuel Database has more than 100 data fields on each of its more than 700 fuel records. Not all fields are populated with data and some fields are not relevant for all fuel records. The data can be divided into the following data categories:

- General – location, number of fuel units current and in 2035, planned disposition, point of contact, type of material, disposal contract status, etc.
- Isotope – heavy metal mass (beginning-of-life and end-of-life), radionuclide inventory (actinides, activation products, and fission products) for 2010 and 2030, enrichment, etc.
- Fabrication – materials of construction (fuel compound, matrix, cladding, bonding, etc.), fabricated form, etc.
- Fuel unit – fuel configuration and geometry, dimensions, volume, mass, cladding condition, storage date, damage, etc.
- Operating history – burnup, date removed from the reactor, irradiating reactor, etc.
- Container – number of containers, hierarchy for nested containers, and container dimensions, materials of construction, condition, volume, mass, etc.
- Comments – textual description of the fuel unit history, condition, fabrication process, post-irradiation examination results, mass, decay heat, cladding, general comments, etc.
- Disposal canister – number and type of canisters planned for disposal, number and type of assemblies for bare disposal



As of December 2006

MTHM – Metric Tons Heavy Metal
Canisters – DOE Standardized Canister
FHU – Fuel Handling Unit

For more information

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