Joint Research Centre

the European Commission's in-house science service



Serving society Stimulating innovation Supporting legislation

Infrastructure development at the JRC Karlsruhe



J.-P. Glatz



Karlsruhe Germany 2-6 October 2016



JRC - Institute for Transuranium Ellements ITU



Signature of the

Karlsruhe town hall.

contract at the

The mission of ITU is to provide the scientific foundation for the protection of the European citizen against risks associated with the handling and storage of highly radioactive material.

1. April 1963: Official

Groundbreaking



2014

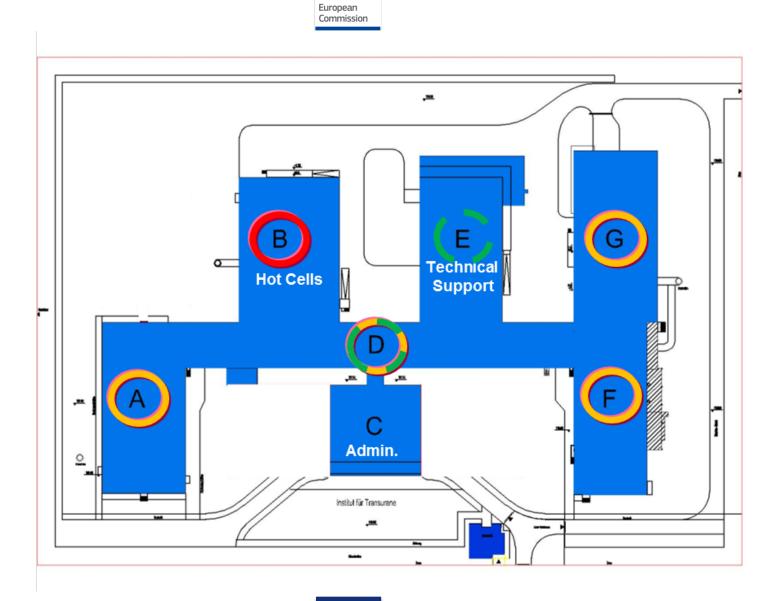
Juli 1958: EURATOM declares interest to operate "well equipped Institute" in KARI SRUHF

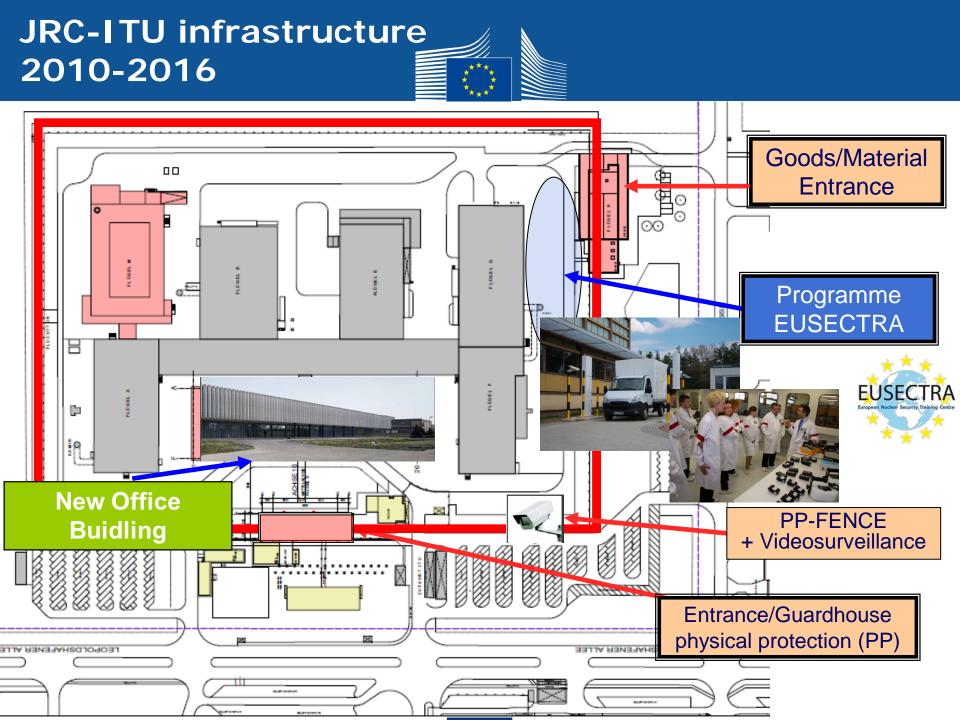


1964: first laboratories start operation

European Commission

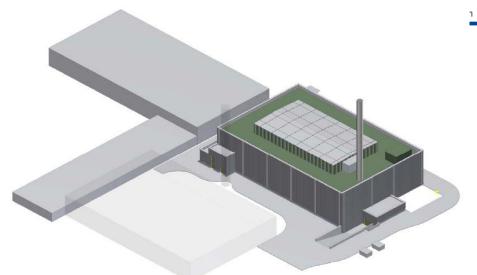
JRC-ITU infrastructure until 2009





JRC-Ka infrastructure 2016-2019





WING M

- Fully self-sustaining building
- High activity labs, fissile materials storage
- Site Physical Protection Hub

Wing M PRIORITY (upon request of supervising authority)

Concept of Wing M - Roadmap End 2016 start construction

No extension of JRC-Karlsruhe labs (stable operational costs)

Future of hot cells facility: reduce inventory (operation wing B), investigation of long term alternatives: transfer to wing M

Workprogram defined with Member States and stakeholders

Reduction of nuclear material inventory



transfer of Pu to USA

(US Dept. of Energy, Global Threat Reduction Initiative)

Joint Venture ITU + WAK GmbH

- conditioning and packing
- SK1 Transport in 2016



UK MOX (BNFL) fuel return to owner through Studsvik to Sellafield

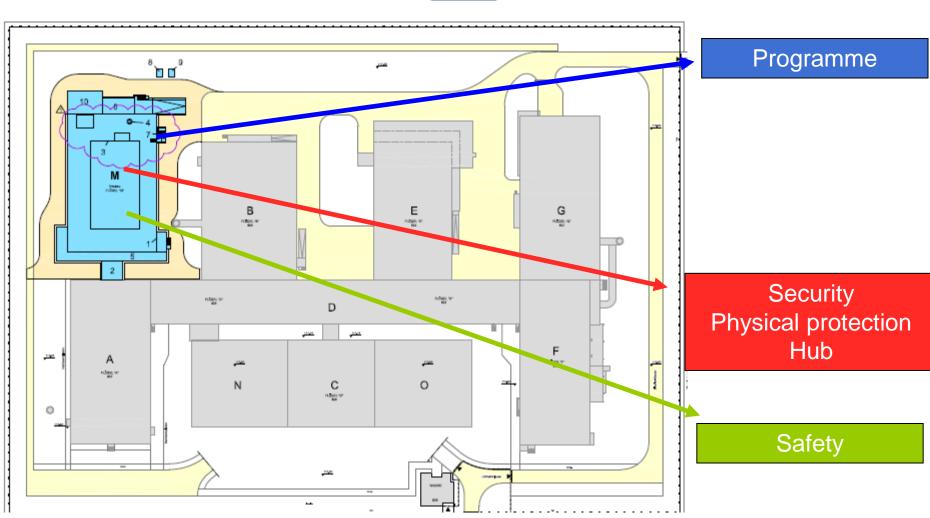
- 2 Transports in 2014
- complex incapsulation (qualification BAM, TÜV)

AREVA various fuels return to reaktor of origin in Germany and Switzerland

ca. 36 fuel pins within 2-3 years

Wing M objectives

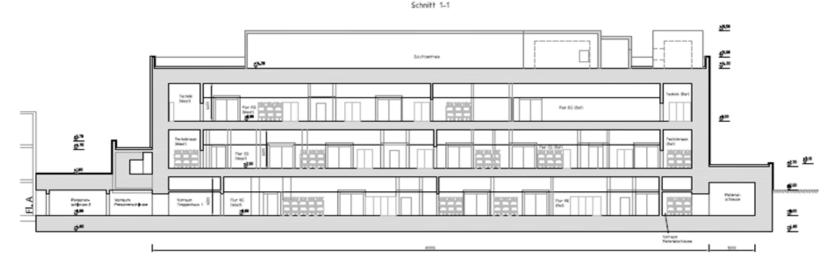




Wing M laboratories and activities



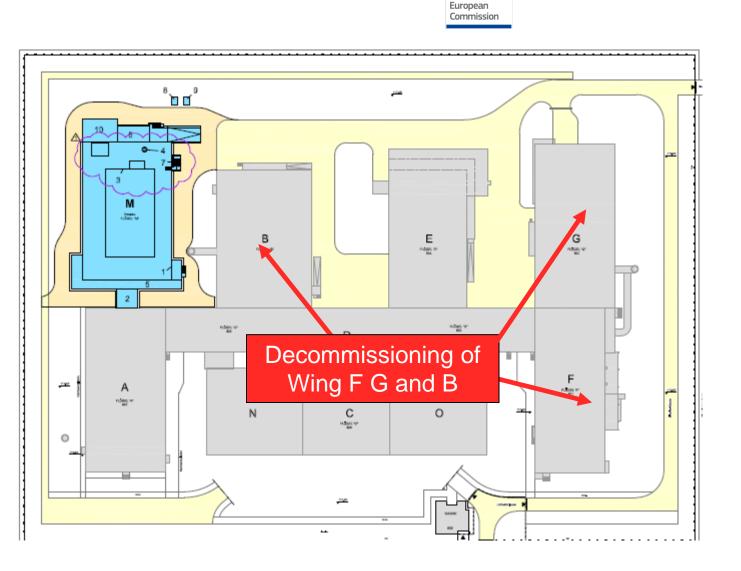
Total surface 2500 m²



- Laboratory for Preparation of Advanced Fuels
- Laboratory for Partitioning & Transmutation
- Power Laser Apparatus for Reactor Irradiated Samples (POLARIS)
- Preparation and Characterisation
 Laboratory

- Laboratory for Mechanical Properties
 - Laboratory for Alpha-Emitters Medical Applications
- Laboratory for Kinetics and Thermodynamics
- Laboratory for Electron Microscopy
- High-Temperature and SurfaceAnalysis

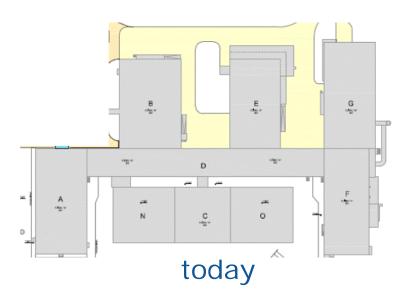
JRC-ITU infrastructure 2020-2035

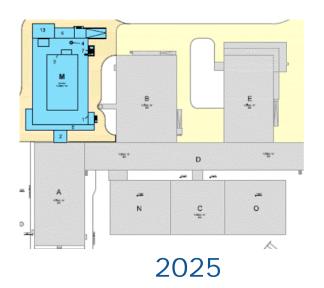


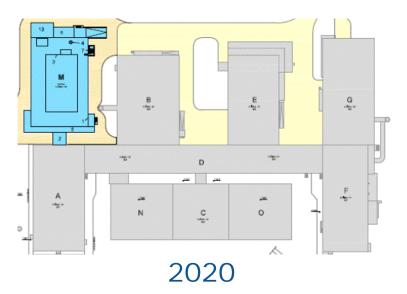
JRC-ITU infrastructure 2020-2035 Renovation Energy LEOPOLDSHAFENER ALLE LEOPOLDSHAFENER ALLEE

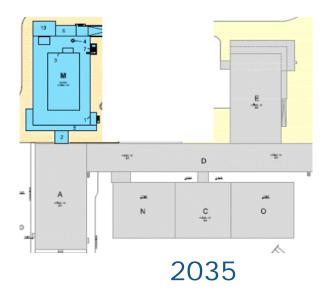
JRC-ITU infrastructure 2020-2035

European Commission



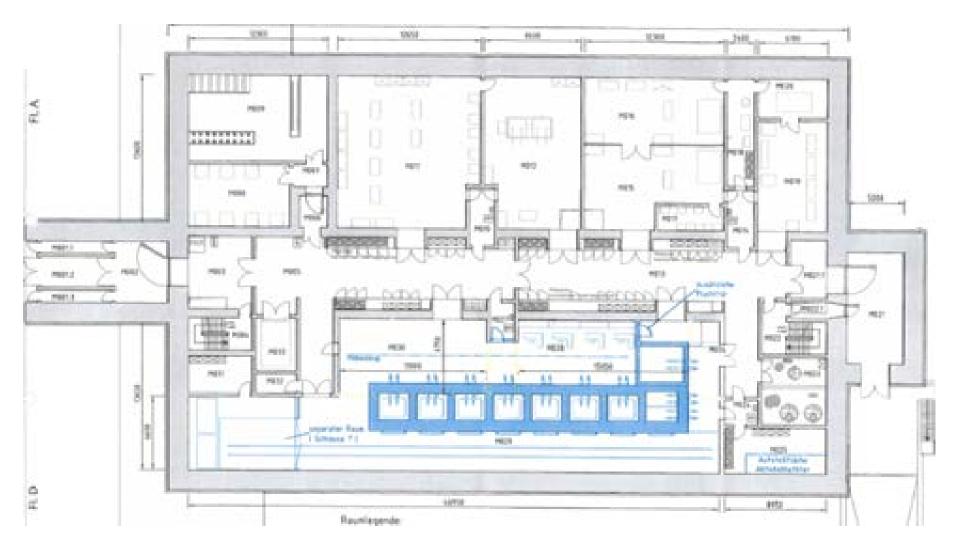






JRC-Ka infrastructure 2020-2035

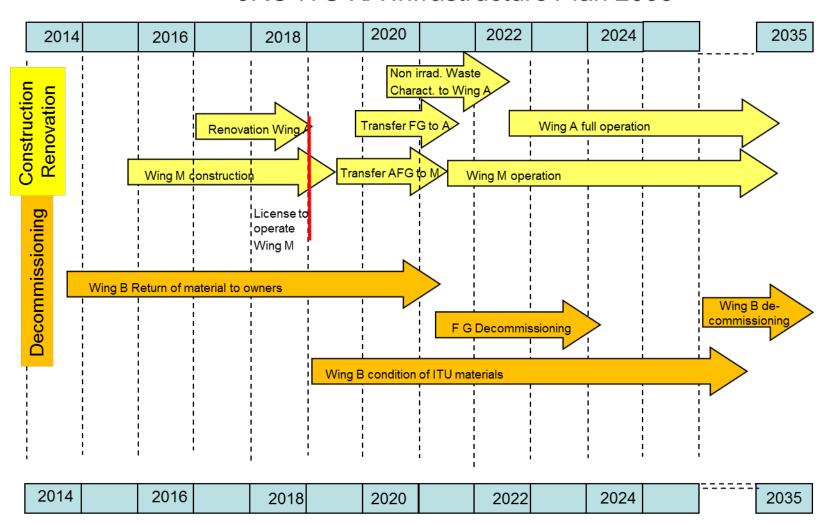




JRC-Ka infrastructure plan 2014/2035

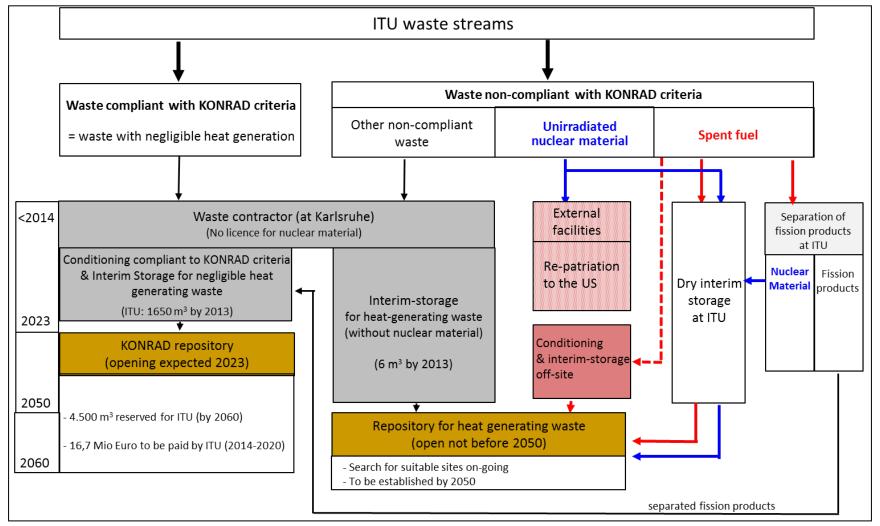


JRC-ITU KA Infrastructure Plan 2035



Decommissioning waste streams





JRC-Ispra Nuclear Safeguards, Security & Standardization Lab



Directorate for Nuclear Safety and Security

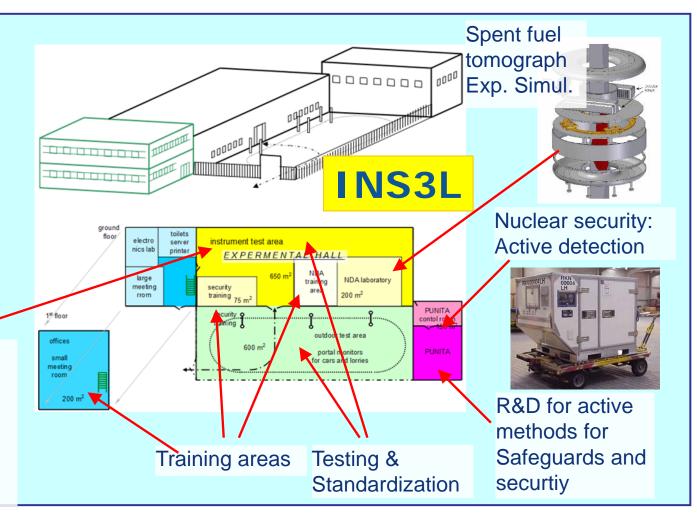
integrating 4 locations currently in DWM area in 1 laboratory

"open" nuclear
laboratory

for
students
industry
R&D partners
network partners

Nuclear Material: Sealed Sources for NDA

Uranium standards from depleted to 93% enrichment, Plutonium standards: oxides, metal, alloys, Radiation sources



JRC-Geel nuclear infrastructure

European
Commission

Directorate for Nuclear Safety and Security

50 years old buildings

Not adapted anymore to present safety & security standards

FEASIBILITY STUDY for grouping

of laboratories: 2 options

Radionuclide metrology

Van de Graaff

<u>2007 – 2014</u>

Modernised

GELINA

infrastructure

Open access facilities

E&T facilities

Mass spectrometry Sample preparation

